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Late-type members of young stellar kinematic groups – I. Single stars

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ABSTRACT

This is the first paper of a series aimed at studying the properties of late-type members of young stellar kinematic groups. We concentrate our study on classical young moving groups such as the Local Association (Pleiades moving group, 20–150 Myr), IC 2391 supercluster (35 Myr), Ursa Major group (Sirius supercluster, 300 Myr), and Hyades supercluster (600 Myr), as well as on recently identified groups such as the Castor moving group (200 Myr). In this paper we compile a preliminary list of single late-type possible members of some of these young stellar kinematic groups. Stars are selected from previously established members of stellar kinematic groups based on photometric and kinematic properties as well as from candidates based on other criteria such as their level of chromospheric activity, rotation rate and lithium abundance. Precise measurements of proper motions and parallaxes taken from the *Hipparcos* Catalogue, as well as from the Tycho-2 Catalogue, and published radial velocity measurements are used to calculate the Galactic space motions (U, V, W) and to apply Eggen's kinematic criteria in order to determine the membership of the selected stars to the different groups. Additional criteria using age-dating methods for late-type stars will be applied in forthcoming papers of this series. A further study of the list of stars compiled here could lead to a better understanding of the chromospheric activity and their age evolution, as well as of the star formation history in the solar neighbourhood. In addition, these stars are also potential search targets for direct imaging detection of substellar companions.

Key words: catalogues – stars: activity – stars: chromospheres – stars: kinematics – stars: late-type – open clusters and associations: general.

1 INTRODUCTION

Stellar kinematic groups (SKGs) are kinematically coherent groups of stars that could share a common origin (the evaporation of an open cluster, the remnants of a star formation region, or a juxtaposition of several little star formation bursts at different epochs in adjacent cells of the velocity field). Eggen (1994) defined a 'supercluster' (SC) as a group of stars gravitationally unbound that share the same kinematics and may occupy extended regions in the Galaxy, and a 'moving group' (MG) as the part of the supercluster that enters the solar neighbourhood and can be observed all over the sky. It has long been known that in the solar vicinity there are several groups of stars that share the same space motions as well-known open clusters. The youngest and best documented groups are the Hyades supercluster (Eggen 1958a, 1960a, 1984a, 1992b, 1996, 1998b) associated with the Hyades cluster (600 Myr), and the Ursa Major group (Sirius supercluster) (Eggen 1960b, 1983a, 1992a, 1998c; Soderblom & Mayor 1993a,b) associated with the UMa cluster of stars (300 Myr). A younger kinematic group called the Local Association or Pleiades moving group seems to consist of a reasonably coherent kinematic stream of young stars with embedded clusters and associations such as the Pleiades, α Per, NGC 2516, IC 2602, and Scorpius-Centaurus (Eggen 1975, 1983b,c; 1992c, 1995a). The ages of the stars of this association range from about 20 to 150 Myr. Evidence has been found that X-ray- and EUV-selected active stars and lithium-rich stars (Favata et al. 1993, 1995, 1998; Jeffries & Jewell 1993; Mullis & Bopp 1994; Jeffries 1995) are members of this association. Other two young moving groups are the IC 2391 supercluster (35–55 Myr) (Eggen 1991, 1995b) and the Castor Moving Group (200 Myr) (Barrado y Navascués 1998).

Since Olin Eggen introduced the concept of MGs and the idea that stars can maintain a kinematic signature over long periods of time, their existence (mainly the old MGs) has been rather controversial (see Griffin 1998; Taylor 2000). There are two factors that act against the persistence of an MG: the Galactic differential rotation (tends to spread the stars) and the disc heating (velocity dispersion of disc stars increase with age). However, recent studies

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Table 1. Young stellar kinematic groups.

Name	Cluster(s)	Age (Myr)	U, V, W (km s^{-1})	V_T (km s^{-1})	C.P. (A, D) (^{h}, ^{o})
Local Association (Pleiades moving group)	Pleiades, α Per, M34 δ Lyr, NGC 2516, IC2602,	20–150	−11.6, −21.0, −11.4	26.5	(5.98, −35.15)
IC 2391 supercluster	IC 2391	35–55	−20.6, −15.7, −9.1	27.4	(5.82, −12.44)
Castor moving group		200	−10.7, −8.0, −9.7	16.5	(4.75, −18.44)
Ursa Major group (Sirius supercluster)	Ursa Major	300	14.9,1.0, −10.7	18.4	(20.55, −38.10)
Hyades supercluster	Hyades, Praesepe	600	−39.7, −17.7, −2.4	43.5	(6.40, 6.50)

(Chereul, Crézé & Bienaymé 1998, 1999; Dehnen 1998; Asiain et al. 1999; Skuljan, Hearnshaw & Cottrell 1999; Feltzing & Holmberg 2000; Mylläri, Flynn & Orlov 2000; Torra, Fernández & Figueras 2000) using astrometric data taken from *Hipparcos* and different procedures to detect MGs not only confirm the existence of classical young MGs (and some old MGs), but also detect finer structures in space velocity and age that in several cases can be related to kinematic properties of nearby open clusters or associations. Skuljan, Cottrell & Hearnshaw (1997) have also confirmed the Eggen's hypothesis of MGs using *Hipparcos* astrometric data. These authors found that the use of *Hipparcos* data considerably reduces the velocity dispersions for all the Eggen MGs. However, Eggen's membership criterion of constant V is not confirmed, and they conclude that both U and V velocity components must be used to create more realistic membership criteria. More complex structures characterized by several longer *branches* (Sirius, middle, and Pleiades branches) running almost parallel to each other across the UV-plane have been found by Skuljan et al. (1999) in their study of the velocity distribution of stars in the solar neighbourhood.

Well-known members of these moving groups are mainly early-type stars, and few studies have concentrated on late-type stars. However, evidence has been found that many young, late-type stars can be members of some young MG [X-ray- and EUV-selected active stars and lithium-rich stars (Jeffries 1995); the late-type stellar population of the Gould belt (Guillout et al. 1998; Makarov & Urban 2000)]. Identification of a significant number of late-type members of these young moving groups would be extremely important for a study of their chromospheric and coronal activity and their age evolution. This is the aim of this series of papers.

In this first paper we focus on the compilation of a preliminary list of single late-type stars, previously established members, or possible new candidates of the different young SKGs mentioned above (see Table 1). We have examine the kinematic properties of these stars using the more recent radial velocities and astrometric data available, in order to determine their membership to the different SKGs. In a companion paper (Montes et al. 2001c, hereafter Paper II) we give the list of spectroscopic binaries, some of them well-known chromospherically active binaries (for preliminary results see Montes, Latorre & Fernández-Figueroa 2000a and Montes et al. 2001a). The origin of these young SKGs will be addressed in Paper III. With this aim we have taken the most recent data available in the literature (including astrometric data from the *Hipparcos* Catalogue and the new Tycho-2 Catalogue) of the nearby young open clusters, OB associations, T associations, and other associations of young stars as TW Hya, in order to calculate their Galactic space motions (U, V, W) and space coordinates (X, Y, Z), and to study their possible association with the different young SKGs as well as with the young flattened and inclined Galactic structure known as the Gould Belt (for preliminary results see Montes 2001a,b; for a review of the evolution from OB associations and moving groups to the field population see Brown 2001).

In addition to the kinematic properties we have also compiled for each star the photometric, spectroscopic and physical properties, as well as information about activity indicators and Li abundance. For some of the candidate stars included in the list analysed in this paper we have also taken high-resolution echelle spectra in order to obtain a better determination of their radial velocity, lithium abundance, rotational velocity and the level of chromospheric activity (for preliminary results see Montes 2001b, Montes, López-Santiago & Gálvez 2001b and Montes et al. 2001d). We will use all these data in forthcoming papers to analyse in detail the membership to the different young SKGs and identified possible age subgroups (see Barrado y Navascués 1998, Barrado y Navascués et al. 1999, Song et al. 2000 and López-Santiago, Montes & Gálvez 2001).

In Section 2 we describe the young SKGs we have considered in this work. Details of the sample selection are given in Section 3. In Section 4 we analyse the membership of this sample to the different SKGs using as membership criteria the Galactic space-velocity components (U, V, W) and the Eggen's kinematic criteria. Finally, Section 5 gives the discussion and conclusions.

2 YOUNG SKGs

We focus our study here on the five youngest and best documented SKGs: the Local Association (Pleiades moving group, 20–150 Myr), IC 2391 supercluster (35 Myr), Castor moving group (200 Myr), Ursa Major group (Sirius supercluster, 300 Myr), and Hyades supercluster (600 Myr). The properties of these SKGs are summarized in Table 1. We list the name, possible open clusters associated to the group, range of age (Myr), the Galactic space-velocity components (U, V, W), total velocity (V_T) and the coordinates (A, D) of the convergent point (C.P.). The velocity vectors have been calculated by us using the spherical parameters and V_T assigned to each group in the literature (Eggen 1958b; 1984c, 1991, 1992c). For the recently identified Castor MG the C.P. and V_T have been derived by us from the space-velocity components given by Barrado y Navascués (1998). In Fig. 1 we

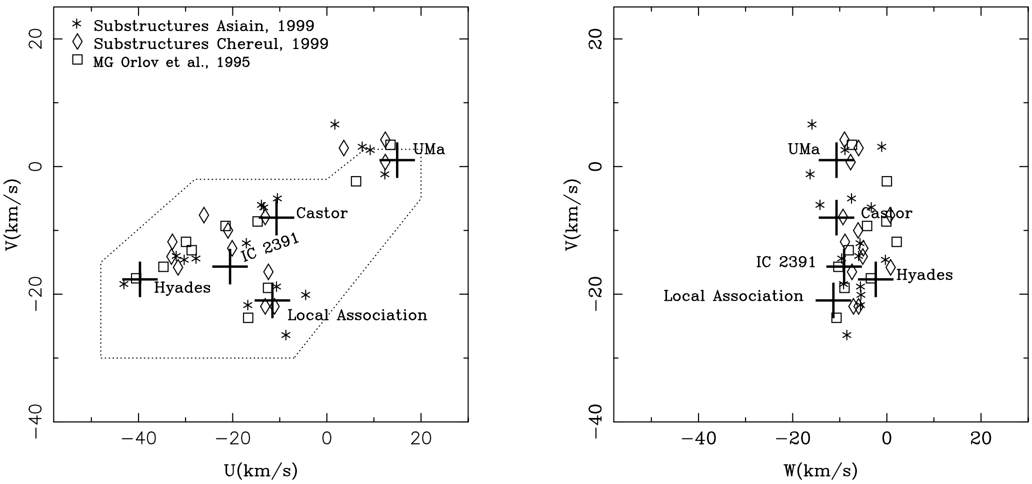

Figure 1. (U, V) and (W, V) planes (Boettlinger diagram) in the region of the young disc stars. Large crosses are centred at the five young SKGs analysed in this work, as given in Table 1. Different symbols are used to plot the position of other SKGs and substructures found by other authors. The dotted line represents the boundaries that determine the young disc population as defined by Eggen (1984b, 1989).

have plotted the position of these SKGs in the (U, V) and (W, V) planes. The velocity components of the substructures found in these SKGs by Asiain et al. (1999) using statistical methods and Chereul et al. (1999) using a 3D wavelet analysis both in the density and velocity distributions are also plotted in Fig. 1. Orlov et al. (1995), using a hierarchical clustering method, have found several kinematic groups in the solar neighbourhood having velocity components close to the five young SKGs considered here. We have plotted the U, V, W components of these MGs in Fig. 1 for comparison.

3 SELECTION OF THE SAMPLE

The sample of late-type stars (spectral type later than F2) analysed in this work has been selected from previously established members of some of these SKGs, based on the photometric and kinematic properties, as well as from new candidates based on other criteria such as their level of chromospheric and coronal activity, rotation rate, and lithium abundance, which are spectroscopic signatures of youth.

On the one hand, the rotation rate in late-type stars moderates the dynamo mechanism which generates and amplifies the magnetic fields in the convection zone, but there is a further relationship between rotation and age. Rotation rates decline with age, because stars lose angular momentum through the coupling of the magnetic field and stellar mass loss, and thus there is an indirect trend of decreasing magnetic activity with increasing age. On the other hand, the resonance doublet of Li I at λ6708 Å is an important diagnostic of age in late-type stars, since it is easy destroyed by thermonuclear reactions in the stellar interiors. Therefore a high level of magnetic activity, rapid rotation, and strong lithium absorption are spectroscopic signatures of youth, and the stars selected in this way are good candidates to be members of some of the young SKGs we are analysing here.

The main sources from which we have selected this late-type star sample are:

(1) the membership lists given by Eggen in his four decades of research on SKGs (Eggen 1958a,b, 1960a,b, 1975, 1983a–c, 1984a–c, 1989, 1991, 1992a–c, 1994, 1995a,b, 1996, 1998a–c), and additional lists given by Soderblom & Mayor (1993a);

(2) the study by Agekyan & Orlov (1984) and Orlov et al. (1995), which searched for kinematic groups in the solar neighbourhood (see also Popović, Ninković & Pavlović 1995);

(3) the study of ages of spotted late-type stars by Chugainov (1991);

(4) X-ray- and EUV-selected active stars and lithium-rich stars (Favata et al. 1993, 1995, 1998; Jeffries & Jewell 1993; Mullis & Bopp 1994; Tagliaferri et al. 1994; Jeffries 1995; Schachter et al. 1996; Hünsch, Schmitt & Voges 1998a,b; Hünsch et al. 1999; Cutispoto et al. 1999; 2000);

(5) single rapidly rotating stars such as AB Dor, PZ Tel, HD 197890, RE J1816+541, BD+224409 (LO Peg), HK Aqr, V838 Cen, V343 Nor and LQ Hya, previously assigned membership of the Local Association;

(6) chromospherically active late-type dwarfs in the solar neighbourhood with studied kinematic properties (Soderblom & Clements 1987; Young, Sadjadi & Harlan 1987; Upgren 1988; Soderblom 1990; Ambruster et al. 1998);

(7) flare stars with studied kinematic properties (Poveda et al. 1996);

(8) the study of field M dwarfs with high-resolution spectra by Delfosse et al. (1998), including the recently identified M9V star DENIS 1048 − 39, which is the closest star later than M7V (Delfosse et al. 2001);

(9) other chromospherically active stars (Henry, Fekel & Hall 1995; Henry et al. 1996; Soderblom et al. 1998);

(10) late-type stars included in the list of the nearest 100 stellar systems given by the Research Consortium on Nearby Stars (RECONS[1]);

(11) the study of nearby young solar analogues by Gaidos (1998) and Gaidos, Henry & Henry (2000);

(12) the sample of nearby, single, solar-type stars selected as proxies for the Sun at different stages in the project the 'Sun in Time' by Bochanski et al. (2000);

(13) the study of nearby young X-ray-active low-mass stars with well-measured parallaxes by Wichmann & Schmitt (2001), and

(14) the active stars included in the Vienna-KPNO search for Doppler-imaging candidate stars (Strassmeier et al. 2000).

[1] RECONS: http://joy.chara.gsu.edu/RECONS/

For this selected sample we analysed here only single stars or effective single stars (wide visual binaries). The spectroscopic binaries are analysed in Paper II. We have considered only isolated stars, that is, we have excluded from the sample known members of open clusters and OB associations. However, we have included some members of other associations of young stars, such as TW Hya and the recently identified β Pic moving group (Barrado et al. 1999), Tucanae association (Zuckerman & Webb 2000), Horologium association (Torres et al. 2000), and HD 199143 stellar group (van den Ancker et al. 2000; van den Ancker, Pérez & de Winter 2001), which could be stream stars related with the Local Association (see López-Santiago et al. 2001 and Montes 2001a,b).

Some pre-main-sequence late-type stars [weak T Tauri stars (WTTSs), and post-T Tauri stars (PTTSs) are also included in our sample as possible members of the youngest SKG, the Local Association. Oppenheimer et al. (1997) have identified two very young M dwarfs which also could be members of the Local Association. In the last few years many WTTSs, PTTSs and young zero-age main-sequence stars have been identified (using Li as an age criterion) with optical follow-up spectroscopy of *ROSAT* X-ray sources in and around nearby star-forming regions and OB associations. Some of these stars could be members of the Local Association, as has been suggested by Martín & Magazzù (1999) and Frink (2001), or may represent a population of Gould Belt low-mass stars (Wichmann et al. 1999, 2000). We have not included these newly identified young stars in our sample, because only a few have enough data (astrometric data and radial velocities) to analyse their kinematics, but they will be included in future work.

Our sample also includes some of the host stars of extrasolar planets discovered in the past few years by measuring their Keplerian Doppler shifts (to date more than 60; see Marcy, Cochran & Mayor 2000 and Marcy & Butler 2000). These stars are nearby late-type stars with high-precision radial velocity measurements. Although many of them have ages greater than 3 Gyr, derived using evolutionary tracks (Fuhrmann, Pfeiffer & Bernkopf 1998; Ford, Rasio & Sills 1999) or Ca II H and K fluxes (Henry et al. 2000), others are known to be younger and could therefore be possible members of some of the young SKGs analysed here.

4 MEMBERSHIP OF THE MOVING GROUPS

4.1 Galactic space-velocity components

In order to determine the membership of this sample to the different SKGs, we have studied the distribution of stars in velocity space by calculating the GALACTIC SPACE-VELOCITY COMPONENTS (U, V, W) in a right-handed coordinated system (positive in the directions of the Galactic Centre, Galactic rotation, and the North Galactic Pole, respectively). We have modified the procedures in Johnson & Soderblom (1987) to calculate U, V, W, and their associated errors. The original algorithm (which requires epoch 1950 coordinates) is adapted here to epoch J2000 coordinates in the International Celestial Reference System (ICRS) as described in the Introduction and Guide to the Data (section 1.5) of the 'The *Hipparcos* and Tycho Catalogues' (ESA 1997). The uncertainties of the velocity components have been obtained using the full covariance matrix in order to take into account the possible correlation between the astrometric parameters. We have used the correlation coefficients provided by *Hipparcos*. It should be noted that the differences between the errors calculated in this way and those obtained by considering the covariances to be zero (as in Johnson & Soderblom 1987) are very small. These differences are generally less than 0.1 km s^{-1}; only for a small number of stars (eight) are the differences between 0.2 and 0.5 km s^{-1}, and in only one case the difference is 1.2 km s^{-1}. The largest differences are for stars with the largest errors in the input data.

PARALLAXES and PROPER MOTIONS have been taken mainly from 'The *Hipparcos* and Tycho Catalogues' (ESA 1997) and 'The Tycho-2 Catalogue' (Høg et al. 2000), which supersedes the PPM (Positions and Proper Motions) Catalogue (Röser & Bastian 1991; Bastian et al. 1993; Röser, Bastian & Kuzmin 1994); ACT Reference Catalog (Urban, Corbin & Wycoff 1997), and TRC (Tycho Reference Catalogue) (Høg et al. 1998).

RADIAL VELOCITIES are taken primarily from the compilation WEB (Wilson Evans Batten) Catalogue (Duflot, Figon & Meyssonnier 1995), the mean radial velocities catalogue of galactic stars (Barbier-Brossat & Figon 2000) which supplements the WEB Catalogue, the Catalogue of Radial Velocities of Nearby Stars (Tokovinin 1992), the Vienna-KPNO search for Doppler-imaging candidate stars, and from other references given in SIMBAD, and in the CNS3, Catalogue of Nearby Stars, Preliminary 3rd Version (Gliese & Jahreiß 1991) or the CNS3R (CNS3 Revised Version).[2] For the stars for which we have taken high-resolution echelle spectra (see Montes et al. 2001b,d) we have used the radial velocities (marked with '*' in Tables 2 to 7) obtained by us by cross-correlation with radial velocity standard stars of similar spectral types.

Our initial sample of more than 1000 stars was reduced to 638 stars with accurate parallaxes, proper motions and radial velocities available in the literature to calculate the Galactic space-velocity components (U, V, W). As we are interested only in young MGs, we restrict this sample to the stars for which the U, V and W components follow the criterion from Leggett (1992) for young disc stars ($-50 < U < 20$; $-30 < V < 0$; $-25 < W < 10$), or more exactly to the stars with U and V velocity components inside or near the boundaries (dotted lines in Figs 1 and 2) that determine the young disc population as defined by Eggen (1984b, 1989, 1998a). We have found 535 stars that satisfied this restriction.

In Tables 2 to 7 we list the stellar and astrometric data we have compiled for the stars in each SKG. We give the name (HD, Henry Draper number; variable star name or other name; HIP, *Hipparcos* identifier; GJ, Gliese Catalogue number), spectral type, coordinates (ICRS J2000.0), radial velocity (V_r) and the error in km s^{-1}, parallax (π) and the error in milliarcseconds (mas), proper motions $\mu_\alpha \cos\delta$ and μ_δ and their errors in mas per year (mas yr^{-1}). The calculated U, V, and W velocity components with their associated errors in km s^{-1} are also given in these tables.

In Fig. 2 we represent the (U, V) and (W, V) planes for this restricted star sample. The distribution of the stars in this figure shows concentrations around the central (U, V, W) position corresponding to the five MGs listed in Table 1. To begin the classification, following Eggen's membership criterion of constant V, we have considered as members only stars with small V dispersions. However, taking into account the results found by other authors (Skuljan et al. 1997, 1999), we have considered a large dispersion in the U, V components ($\approx$8 km s^{-1}) with respect to the central position of the MG in the (U, V) plane to classify a star as a possible member. In addition, we have taken into account the information provided by the W component, in the sense that stars considered as possible members for their position in

[2] CNS3R available only at ARI (Astronomisches Rechen-Institut Heidelberg) Database for Nearby Stars at http://www.ari.uni-heidelberg.de/aricns/

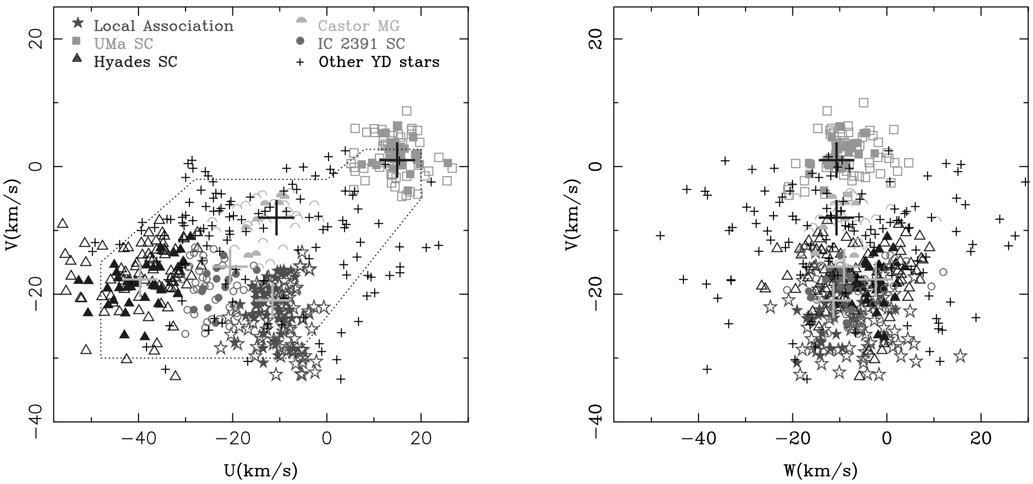

Figure 2. (U, V) and (W, V) planes as in Fig. 1 for our star sample. We plot with different symbols the stars belonging to the different stellar kinematic groups, and the other young disc stars. Filled symbols are stars that satisfied both of Eggen's criteria (peculiar velocity, PV, and radial velocity, ρ_c), and open symbols are other possible members.

the (U, V) plane are excluded if their W component deviates considerably ($\approx 8\,\mathrm{km\,s^{-1}}$) with respect to the W component of the MG. Following these we have classified the stars from our sample as members of one of the MGs or as other young disc stars if their classification is not clear but is inside or near the boundaries that determine the young disc population (see Tables 2 to 7). In Fig. 2 we plot with different symbols the stars belonging to the different SKGs, and the other young disc stars. Filled symbols represent stars that, in addition, satisfied Eggen's criteria described in the next two subsections.

4.2 Convergent point

The members of a moving group can be established by the degree to which their motions define a common convergent point in the sky. However, this is not a sufficient membership criterion (there might be some stars moving in the same direction, but with a significantly different speed). Eggen's criteria of membership (described in the next subsection) also take into account the magnitude of the velocity vector.

We can apply the convergent point criterion to a moving group by plotting the great circles defined by the proper motions and positions of individual stars and test whether their poles are close to the convergent point given in the literature for that moving group. We have applied this analysis to our sample of candidate members to the five MGs studied in this paper (see Fig. 3 for the case of the Hyades). We have obtained, in general, a good agreement between the position of the poles and the convergent point. However, there are some stars with clear discrepancies, which are probably not members. These deviations with respect to the convergent point will be analysed in a more quantitative way by applying Eggen's criteria, as described in next subsection.

In this convergent point analysis (following other authors) we have not corrected for the Sun's motion. It is possible that the Sun's motion induces this effect, so we need to prove that the MGs really converge towards a point independently of this effect. In fact, nearly all the convergent points of the MGs are situated close to the apex or antiapex. If we make this correction with each moving group, we obtain that in the cases of the Hyades, Ursa Major, IC 2391 and Castor MGs the trend of the candidate star members to have a common convergent point is maintained. However, in the case of the Local Association the dispersion increases somewhat. It seems that the proper motion great circles tend to converge towards several points that are close together. This could indicate that the Local Association has several substructures, or that is a concentration of different MGs with similar space motions.

4.3 Eggen's criteria

Eggen has developed several criteria during many years studying stars in MGs (see Eggen 1958a, 1995b). These criteria are based on one supposition: it is possible to treat MGs, whose stars are extended in space, like moving clusters, whose stars are concentrated in space. As in the moving cluster method, it is assumed that the total space velocities of stars in a moving group are parallel and move towards a common convergent point. Eggen's criteria try to quantify how the space motion of the stars deviates from the convergent point, and use the following parameters and relations:

(1) The components of the absolute proper motion (μ) in the direction of the convergent point (υ) and perpendicular to it (τ).

(2) The angular distance between the star and the convergent point (λ).

(3) The trigonometric parallax (π)

(4) The relations between the tangential ($V_{\rm tan}$), radial ($V_{\rm r}$) and total ($V_{\rm Total}$) velocities in the moving cluster method:

$$V_{\rm tan} = 4.74\mu\pi^{-1},$$

$$V_{\rm tan} = V_{\rm Total}\sin\lambda; \quad V_{\rm r} = V_{\rm Total}\cos\lambda,$$

$$V_{\rm Total} = 4.74\mu\pi^{-1}\sin^{-1}\lambda$$

The total velocity can also be calculated from the U, V, W components as

$$V_{\rm Total} = (U^2 + V^2 + W^2)^{1/2}.$$

The two main Eggen criteria are as follows.

(1) PECULIAR VELOCITY CRITERION

In the first papers Eggen used the ratio (τ/υ) as a measure of how the star turns away from the convergent point, but later he defined a

Table 2. Local Association.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 67	SAO 248115	HIP	459		G5 V	0 5 28.45	−61 13 33.06	7.0	2.0	18.57	0.95	83.90	1.30	−77.80	1.30	−10.02	1.07	−28.29	1.62	1.29	1.70	30.04	30.79	−12.5 N	15.9 N
HD 105	1E 0003.3-4201	HIP	490		G0 V	0 5 52.55	−41 45 11.04	3.2	2.0	24.85	0.92	98.50	1.00	−75.80	1.10	−9.57	0.70	−21.74	0.92	−2.88	1.91	23.93	25.44	−4.4 Y	10.2 N
HD 166	HR 8	HIP	544	GJ 5	K0 V	0 6 36.78	29 1 17.41	−6.9	0.2	72.98	0.75	380.50	0.90	−177.90	0.90	−15.00	0.20	−21.60	0.24	−10.04	0.19	28.15	27.99	3.4 Y	−7.1 Y
HD 1405	PW And				K2 V	0 18 20.90	30 57 22.03	−11.0	0.1	32.68	1.00	143.70	1.20	−171.50	1.10	−5.42	0.33	−28.69	0.63	−17.94	0.74	34.27	31.94	−9.5 N	−7.6 Y
HD 1466	SAO 248159	HIP	1481		F8 V	0 18 26.12	−63 28 38.97	7.0	2.0	24.42	0.68	89.80	1.30	−58.00	1.30	−8.77	0.86	−20.03	1.08	−1.25	1.62	21.90	23.36	−6.9 N	12.8 Y
	BPM 1699	HIP	1910		M0 V	0 24 8.98	−62 11 4.41	4.0	2.0	21.59	2.22	84.10	6.90	−55.30	6.40	−10.18	2.18	−19.95	2.60	1.69	1.91	22.46	24.85	−7.6 N	13.7 N
	CT Tuc	HIP	1993		K7 V	0 25 14.66	−61 30 48.33	7.0	2.0	26.69	24.00	84.59	19.30	−63.40	23.90	−6.39	8.91	−18.97	14.89	−0.98	5.24	20.04	20.62	−7.5 N	11.4 Y
HD 3221		HIP	2729		K4 V	0 34 51.20	−61 54 58.10	−1.0	2.0	21.78	1.01	88.00	1.80	−50.50	1.70	−12.40	0.99	−17.34	1.32	5.84	1.67	22.10	25.41	−7.1 N	−14.4 N
HD 5996	BD+68 67	HIP	4907		G5 V	1 2 57.22	69 13 37.41	−20.0	0.5	38.73	0.78	225.30	1.10	−149.10	1.20	−13.48	0.59	−30.77	0.51	−19.11	0.38	38.65	37.02	−3.2 Y	−17.0 Y
HD 9540		HIP	7235	GJ 59A	K0 V	1 33 15.81	−24 10 40.67	3.0	1.0	51.27	0.88	272.70	1.40	−159.40	1.40	−11.27	0.30	−27.11	0.51	0.27	0.99	29.36	34.52	−1.4 Y	18.5 N
	BD+17 232				K3 Ve	1 37 39.42	18 35 32.91	3.2	1.0	15.80	5.00	69.90	1.50	−47.50	1.50	−13.28	3.71	−20.09	6.88	−8.56	2.16	25.56	25.41	3.2 Y	3.6 Y
HD 10008	BD−07 268	HIP	7576		G5 V	1 37 35.47	−6 45 37.52	11.6	0.6	42.35	0.96	171.90	1.40	−97.70	1.40	−13.16	0.35	−18.13	0.52	−11.07	0.56	24.99	24.10	2.3 Y	9.8 Y
HD 10360				GJ 66B	K5 V	1 39 47.70	−56 11 34.00	20.9	0.9	148.00	7.00	302.60	1.40	−14.10	1.30	−3.63	0.37	−16.16	0.52	−16.02	0.78	23.04	13.11	−0.1 Y	8.8 N
HD 10361		HIP	7751	GJ 66A	K5 V	1 39 47.56	−56 11 47.34	19.5	1.0	122.75	1.41	286.10	1.01	16.66	1.41	−5.59	0.21	−15.63	0.48	−15.07	0.86	22.42	14.88	1.1 Y	10.0 N
	V596 Cas	HIP	9291	GJ 82	dM4e -	1 59 23.51	58 31 16.02	−9.8	0.5	83.20	3.68	322.50	3.20	−193.70	3.20	−8.66	0.79	−21.27	0.76	−5.32	0.34	23.57	21.84	4.3 Y	−6.0 Y
HD 12230	47 Cas	HIP	9727		F0 V	2 5 7.38	77 16 52.73	−26.0	5.0	29.80	0.56	122.70	2.00	−60.20	2.10	−2.53	2.96	−32.26	3.87	−10.09	1.36	33.90	24.06	4.5 Y	−11.2 N
HD 15013	BD+33 429	HIP	11352		G5 V	2 26 9.59	34 28 10.04	−2.5	0.5	23.19	1.21	115.40	0.90	−49.90	1.00	−13.12	0.88	−22.22	1.19	0.93	0.28	25.82	23.25	11.1 N	−1.8 Y
HD 16765	84 Cet	HIP	12530		F7 IV	2 41 14.00	0 41 44.36	7.8	1.0	46.24	1.31	222.40	0.90	−127.10	0.90	−12.66	0.66	−24.14	0.76	−2.67	0.81	27.39	30.41	5.8 Y	16.4 N
HD 17925	EP Eri	HIP	13402	GJ 117	K1 V	2 52 32.13	−12 46 10.97	17.5	0.1	96.33	0.77	397.30	1.20	−189.90	1.30	−15.01	0.10	−21.80	0.18	−8.68	0.11	27.85	28.86	4.1 Y	19.5 Y
HD 19668	BD−10 626	HIP	14684		G0 V	3 9 42.29	−9 34 46.59	14.6	0.7	24.90	1.28	88.00	1.20	−113.30	1.10	−5.11	0.51	−28.77	1.48	−10.27	0.58	30.97	37.05	−5.6 Y	25.6 N
	1E 0318.5-19.4				K7 V	3 20 49.50	−19 16 10.00	20.8	1.0	37.00	5.00	90.80	1.80	−43.80	4.90	−12.69	0.74	−17.27	1.66	−11.85	1.09	24.49	20.72	1.6 Y	16.3 Y
HD 21845	V577 Per	HIP	16563		K2 -	3 33 13.49	46 15 26.54	−2.0	1.0	29.61	1.40	67.00	1.10	−176.00	1.10	−8.91	1.01	−23.90	1.22	−16.20	0.83	30.22	29.86	−4.3 Y	−1.2 Y
HD 25457	BD−00 632	HIP	18859	GJ 159	F6 V	4 2 36.74	0 16 8.13	18.1	0.9	52.00	0.75	150.70	0.90	−252.00	0.90	−8.25	0.72	−28.76	0.44	−12.21	0.55	32.32	38.34	−1.8 Y	27.5 N
HD 25665	BD+69 238	HIP	19422	GJ 161	G5 -	4 9 35.04	69 32 29.01	−13.7	0.2	54.17	0.79	73.60	1.00	−298.80	1.10	−7.42	0.31	−23.82	0.27	−17.04	0.24	30.21	27.73	−4.3 Y	−7.9 Y
HD 29883	BD+27 688	HIP	21988	GJ 176.2	K5 V	4 43 35.44	27 41 14.65	17.4	0.6	44.74	0.99	54.60	0.80	−264.90	0.80	−17.23	0.58	−23.43	0.59	−16.68	0.34	33.53	31.41	−2.6 Y	13.1 Y
HD 36705A	AB Dor	HIP	25647		K0 V	5 28 44.85	−65 26 54.97	28.0	1.0	66.92	0.54	48.90	1.30	137.60	1.20	−7.75	0.15	−25.56	0.84	−13.32	0.55	29.85	20.13	−1.3 Y	17.3 N
HD 36869	BD−15 1082				G3 V	5 34 9.16	−15 17 3.18	24.1	2.0	28.60	7.10	25.60	1.30	−22.30	1.20	−14.86	1.56	−18.31	1.62	−7.52	1.00	24.75	13.17	3.2 N	12.3 N
HD 37572	UY Pic	HIP	26373		K0 V	5 36 56.85	−47 57 52.87	32.4	1.7	41.90	1.74	24.60	1.10	1.20	1.10	−7.55	0.40	−27.97	1.39	−14.78	0.91	32.52	4.56	−2.6 N	4.4 N
HD 37394		HIP	26779	GJ 211	K1 V	5 41 20.34	53 28 51.81	0.3	0.2	81.69	0.83	3.50	1.10	−523.60	1.10	−12.89	0.23	−23.35	0.27	−14.55	0.18	30.38	30.34	−1.7 Y	0.7 Y
HD 233153		HIP	26801	GJ 212	M0.5 -	5 41 30.73	53 29 23.28	1.9	1.0	80.13	1.67	3.16	1.61	−517.26	1.04	−14.44	0.95	−22.94	0.63	−14.32	0.39	30.66	30.56	−1.7 Y	0.7 Y
HD 43989	V1358 Ori	HIP	30030		F9 V	6 19 8.06	−3 26 20.38	19.1	2.4	20.10	0.99	10.60	0.90	−43.70	1.00	−10.12	2.03	−18.62	1.37	−5.32	0.46	21.85	18.59	−3.9 N	15.8 Y
HD 45081	AO Men	HIP	29964		K5 -	6 18 28.21	−72 2 41.43	16.2	1.0	25.99	1.02	−8.50	1.50	75.70	1.45	−10.50	0.66	−16.38	0.88	−8.76	0.53	21.34	23.09	0.1 Y	18.4 Y
	V577 Mon	HIP	30920	GJ 234A	M4 -	6 29 23.40	−2 48 50.32	15.0	0.5	242.88	2.64	694.66	3.00	−618.55	2.48	−3.92	0.43	−22.69	0.32	4.95	0.12	23.55	16.71	−15.7 N	14.0 Y
HD 261557	BD+03 1342	HIP	31849		K3 V	6 39 31.36	3 19 10.65	11.3	0.3	16.60	1.75	−30.70	1.30	−64.40	1.30	−3.73	0.73	−16.08	1.20	−16.44	1.78	23.30	31.19	4.4 Y	24.0 N
HD 48189		HIP	31711	GJ 3400A	G1.5 V	6 38 0.39	−61 32 0.20	32.3	1.0	46.15	0.64	−26.00	3.80	72.40	3.40	−7.20	0.40	−28.87	0.92	−14.85	0.56	33.25	17.33	−0.3 Y	15.4 N
	BD+20 1790				K5 Ve	7 23 44.00	20 25 6.00	9.3	1.0	31.60	5.00	−55.00	5.00	−238.00	5.00	−5.23	1.09	−32.61	4.79	−18.40	3.41	37.81	42.36	−4.6 Y	21.7 N
	BD+02 1729	HIP	37288	GJ 281	K7 -	7 39 23.04	2 11 1.18	18.5	5.0	67.27	1.51	−147.60	1.60	−247.30	1.50	−10.99	3.94	−21.47	2.92	−13.13	1.09	27.46	29.14	0.3 Y	20.9 Y
	YZ CMi	HIP	37766	GJ 285	M4.5 -	7 44 40.17	3 33 8.96	26.0	0.5	168.59	2.67	−348.50	1.80	−446.90	1.90	−19.27	0.40	−22.24	0.31	−8.00	0.27	30.50	21.97	2.1 Y	15.3 N
HD 64725	BD+37 1804	HIP	38825		K0 III	7 56 44.76	36 53 47.14	17.2	0.2	4.66	1.06	−7.70	1.10	−27.30	1.10	−20.35	1.41	−26.35	6.18	−4.50	3.25	33.60	29.27	−4.3 Y	6.5 N
	FP Cnc	HIP	39896	GJ 1108A	K7 -	8 8 56.39	32 49 11.41	11.3	1.0	48.26	3.16	−30.00	3.77	−217.20	2.50	−10.74	0.88	−21.76	1.38	−1.64	0.79	24.32	21.09	−7.1 N	5.6 Y
	BD+07 1919	HIP	39721	GJ 9251A	K8 -	8 7 9.09	7 23 0.13	20.3	5.0	24.85	3.92	−1.30	3.30	−138.00	3.10	−5.53	4.19	−32.52	4.38	−4.13	2.55	33.24	28.00	−14.3 N	17.2 Y
	BD+07 1919B			GJ 9251B	K5 -	8 7 8.78	7 22 58.39	20.3	5.0	35.40	6.00	−3.00	3.30	−131.20	3.20	−9.01	4.02	−25.29	3.64	−0.63	2.19	26.85	18.85	−9.3 N	11.6 N
HD 70146	BD+22 1914	HIP	40920		G5 III	8 21 4.91	22 1 54.15	4.5	0.2	3.92	1.08	−10.60	0.90	−17.40	0.90	−6.64	1.26	−19.25	5.31	−14.58	5.09	25.04	26.89	0.0 Y	10.8 N
HD 70573	BD+02 1951				G6 V	8 22 49.95	1 51 33.55	19.5	1.0	21.90	5.00	−50.50	1.30	−49.00	1.30	−14.67	0.77	−18.78	1.64	−6.66	3.15	24.74	19.72	1.9 Y	12.7 N
HD 77407	BD+38 1993	HIP	44458		G0 -	9 3 27.09	37 50 27.52	4.4	0.2	33.24	0.91	−80.20	1.20	−168.00	1.30	−10.10	0.30	−23.91	0.70	−7.12	0.38	26.91	26.19	−5.0 Y	2.5 Y
HD 82443	DX Leo	HIP	46843	GJ 354.1	K0 V	9 32 43.76	26 59 18.71	8.1	0.1	56.35	0.89	−147.80	1.40	−246.70	1.30	−9.91	0.15	−22.83	0.36	−5.61	0.23	25.51	24.11	−4.6 Y	4.2 Y
HD 82939	BD+38 2052	HIP	47110		G5 V	9 36 4.28	37 33 10.36	−1.0	0.3	26.29	1.14	−99.10	1.10	−90.80	1.10	−10.94	0.61	−17.47	0.80	−12.79	0.62	24.26	24.12	2.5 Y	−0.7 Y
	BD−21 2961				K -	9 59 8.42	−22 39 34.61	27.7	1.0	27.50	5.00	−65.00	4.30	−22.00	3.70	−11.36	1.38	−27.79	1.10	2.40	1.86	30.12	14.57	1.9 Y	8.7 N
	DK Leo	HIP	50156	GJ 2079	K7 -	10 14 19.18	21 4 29.45	10.0	1.0	48.95	1.71	−137.70	1.40	−167.10	1.40	−10.33	0.55	−20.68	0.73	−2.32	0.89	23.23	20.92	−3.0 Y	2.7 N
HD 89744	BD+41 2076	HIP	50786	GJ 9326	F7 V	10 22 10.56	41 13 46.31	−6.5	1.3	25.65	0.70	−119.50	0.90	−138.60	1.00	−10.41	0.84	−29.62	0.85	−14.16	1.12	34.44	33.76	−4.7 Y	−4.3 Y
	BD+01 2447	HIP	51317	GJ 393	M2 -	10 28 55.55	0 50 27.58	8.3	0.5	138.29	2.13	−602.30	1.91	−731.85	2.10	−7.48	0.19	−28.61	0.50	−15.82	0.51	33.54	33.22	−7.3 N	10.1 Y
HD 92945	SAO 179168	HIP	52462	GJ 3615	K1 V	10 43 28.27	−29 3 51.43	23.2	0.6	46.36	0.84	−212.50	1.50	−50.00	1.20	−14.88	0.35	−28.27	0.56	−3.99	0.40	32.20	25.33	4.9 Y	12.9 N
	EE Leo	HIP	53020	GJ 402	M4 -	10 50 52.06	6 48 29.34	−2.0	0.1	177.46	23.00	−804.39	36.50	−809.59	16.50	−7.89	1.57	−22.54	3.18	−19.06	2.42	30.55	30.65	−4.1 Y	−5.2 Y
HD 96064	BD−03 3040A	HIP	54155		G8 V	11 4 41.47	−4 13 15.91	18.3	0.8	40.57	1.40	−178.60	1.20	−102.90	1.20	−14.22	0.46	−26.69	0.74	−0.61	0.80	30.25	24.66	2.2 Y	5.7 N
HD 97334B	HR 4345	HIP	54745	GJ 417	G0 V	11 12 32.35	35 48 50.69	−3.6	1.0	46.04	0.90	−248.60	1.40	−151.90	1.40	−15.80	0.54	−23.17	0.50	−11.23	0.94	30.21	30.58	1.9 Y	−6.2 Y
HD 98736	BD+19 2443	HIP	55486	GJ 426A	G5 -	11 21 49.34	18 11 24.01	−4.1	2.0	31.68	1.55	−148.20	1.00	−93.60	1.10	−12.29	0.84	−19.07	1.21	−13.78	1.92	26.54	26.21	1.7 Y	−1.4 Y
HD 99303	BD+20 2601	HIP	55772		G5 V	11 25 39.95	20 0 7.66	4.5	0.4	32.79	1.19	−202.10	0.80	−91.00	0.80	−20.90	0.76	−23.63	0.85	−7.21	0.57	32.36	31.52	6.4 N	2.7 Y
HD 102195	BD+03 2549	HIP	57370		K0 V	11 45 42.29	2 49 17.34	2.1	0.6	34.51	1.16	−190.00	1.00	−112.60	1.10	−15.42	0.58	−23.74	0.87	−11.13	0.70	30.42	30.24	2.4 Y	0.6 Y
HD 102392	BD−11 3178AB	HIP	57494	GJ 444AB	K2+? -	11 47 3.84	−11 49 26.63	19.7	2.0	40.57	2.66	−191.00	1.50	−64.80	1.40	−13.89	1.10	−27.03	1.62	4.44	1.64	30.71	23.00	6.3 N	3.7 N
	BD+08 2599	HIP	60661	GJ 466	M0 V	12 25 58.58	8 3 44.03	−5.0	2.0	25.08	1.85	−129.70	2.40	−110.80	2.30	−11.06	1.02	−27.33	2.35	−13.97	2.01	32.63	32.57	−3.4 Y	−5.7 Y
HD 108767B	del CrvB				K0 V	12 29 50.91	−16 31 14.99	7.0	5.0	37.11	0.69	−209.97	0.62	−139.30	0.46	−13.54	1.52	−28.49	3.17	−9.47	3.61	32.93	32.21	1.2 Y	1.9 Y
HD 109157	SAO 82366	HIP	61198		G7 V	12 32 27.43	28 5 4.62	7.1	0.4	22.80	1.21	−82.00	1.30	−121.30	1.20	−2.24	0.32	−30.55	1.69	6.21	0.40	31.26	29.34	−13.7 N	11.0 Y
HD 110010	BD+80 389	HIP	61597	GJ 479.1	G0 -	12 37 19.23	79 12 55.71	−19.0	1.0	27.94	0.58	−124.70	1.00	11.20	1.20	−10.25	0.62	−22.41	0.71	−14.32	0.64	28.50	26.29	1.2 Y	−15.5 Y
HD 111395	HR 4864	HIP	62523	GJ 486.1	G5 V	12 48 47.05	24 50 24.81	−8.6	1.0	58.23	0.99	−335.00	1.20	−106.00	1.10	−18.43	0.36	−21.63	0.43	−9.22	1.00	29.88	30.59	5.8 Y	−12.3 Y
HD 113449	BD−04 3408	HIP	63742		G5 V	13 3 49.66	−5 9 42.57	−6.3	0.6	45.20	1.27	−189.60	0.70	−223.20	0.80	−7.85	0.28	−25.24	0.85	−16.86	0.61	31.35	30.46	−6.7 N	−5.4 Y
	Ross 1007	HIP	65016	GJ 507.1	M1.5 -	13 19 40.13	33 20 47.52	−11.7	1.0	57.52	2.30	−296.30	3.80	−144.20	4.20	−12.81	0.63	−25.53	1.05	−7.65	1.00	29.57	32.54	−1.4 Y	−18.0 N
HD 116956	BD+57 1438	HIP	65515		G9 V	13 25 45.53	56 58 13.77	−13.1	0.3	45.76	0.72	−218.30	0.90	10.70	1.10	−15.90	0.33	−18.80	0.27	−8.83	0.27	26.16	29.47	2.9 Y	−19.1 Y
	BD−03 3527	HIP	67092	GJ 524.1	K5 -	13 45 5.33	−4 37 13.25	4.6	0.5	38.97	1.80	−166.90	1.90	−96.40	2.00	−7.99	0.62	−22.44	1.08	1.84	0.46	23.89	24.39	3.9 Y	7.8 Y
HD 124106	BD−11 3684	HIP	69357	GJ 3827	K1 V	14 11 46.17	−12 36 42.37	3.0	0.5	43.35	1.40	−256.20	1.10	−180.40	1.10	−10.79	0.55	−32.62	1.10	−1.67	0.40	34.40	35.63	5.3 Y	11.1 N
HD 125874	BD+38 2549	HIP	70142		K2 V	14 21 8.86	37 24 3.69	−16.0	0.4	23.65	1.14	−130.00	1.60	−23.30	1.60	−16.68	0.81	−25.48	1.06	−5.40	0.61	30.93	38.49	1.9 Y	−28.0 N
HD 129333	EK Dra	HIP	71631	GJ 559.1A	G1.5 V	14 39 0.22	64 17 29.84	−20.6	0.3	29.46	0.61	−135.90	1.10	−25.30	1.20	−7.25	0.32	−29.07	0.42	−4.65	0.35	30.32	28.89	−11.2 N	−21.6 Y
	SAO 252852			GJ 560B	K5 V	14 42 28.12	−64 58 43.00	7.0	4.0	60.97	0.58	−192.64	0.39	−234.06	0.49	−10.86	2.79	−19.21	2.86	−10.85	0.34	24.59	24.66	−0.3 Y	7.3 Y
HD 130004	BD+14 2779	HIP	72146		K0 V	14 45 24.18	13 50 46.72	−10.0	0.6	51.20	0.98	−230.80	1.00	−226.70	1.00	−5.12	0.31	−30.76	0.60	−4.98	0.53	31.58	39.58	−4.9 Y	−26.3 N
HD 130322	BD+00 3243	HIP	72339		K0 V	14 47 32.72	0 16 53.32	−12.5	0.0	33.60	1.51	−132.70	1.00	−140.90	1.10	−9.76	0.18	−26.29	1.31	−10.75	0.13	30.03	32.55	−1.4 Y	−17.8 Y
HD 134353	BD+19 2929	HIP	74118		K0 V	15 8 51.97	19 2 19.06	−24.3	0.3	26.65	1.16	−153.80	0.90	−36.00	0.90	−22.53	0.52	−28.44	1.01	−7.98	0.61	37.15	40.71	9.2 N	−30.9 N
HD 139084	V343 Nor	HIP	76629		K0 V	15 38 57.55	−57 42 27.27	5.1	0.5	25.15	1.09	−46.20	1.50	−97.90	1.50	−6.73	0.65	−17.34	0.74	−9.82	0.53	21.03	20.55	−1.0 Y	2.6 Y
HD 139664	g Lup	HIP	76829	GJ 594	F5 V	15 41 11.38	−44 39 40.34	−5.4	2.0	57.09	0.72	−168.70	0.72	−265.69	0.60	−15.08	1.75	−19.76	0.98	−9.72	0.32	26.69	26.11	2.2 Y	−2.0 Y

Table 2. – *continued*

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		$V_{\rm Total}$ (km/s)	$V_{\rm T}$ (km/s)	PV (km/s)	ρ_c (km/s)
HD 140901	HR 5864	HIP	77358	GJ 599A	G6 V	15 47 29.10	−37 54 58.71	−5.2	2.0	65.60	0.77	−414.90	1.20	−213.70	1.40	−18.94	1.80	−27.80	0.84	5.74	0.47	34.12	27.81	19.8 N	−5.2 Y
HD 141272	BD+02 3001	HIP	77408	GJ 3917	G8 V	15 48 9.46	1 34 18.26	−27.2	0.3	46.84	1.05	−176.50	1.10	−165.80	1.00	−19.58	0.24	−27.61	0.57	−13.97	0.24	36.62	34.13	3.6 Y	−24.0 Y
HD 141714	del CrB	HIP	77512		G3.5 III	15 49 35.65	26 4 6.21	−19.1	0.9	19.71	0.73	−78.10	0.90	−64.30	0.90	−5.12	0.50	−30.09	0.94	−5.01	0.80	30.93	48.66	−5.6 Y	−42.5 N
HD 142361	1E1552.0-2338				G3 IV	15 54 59.87	−23 47 18.16	−0.3	1.0	14.00	5.00	−42.20	1.10	−65.30	1.10	−3.20	1.39	−25.50	9.14	−5.73	2.07	26.33	28.72	2.5 Y	−11.8 N
HD 147379B	BD+67 935B	HIP	79762	GJ 617B	M3 -	16 16 45.33	67 15 22.52	−19.4	0.8	93.14	1.38	−477.40	2.00	91.60	2.10	−9.82	0.24	−29.72	0.65	2.99	0.56	31.44	32.03	−16.4 N	−26.1 N
	V2306 Oph	HIP	80824	GJ 628	M3.5 -	16 30 18.06	−12 39 45.38	−22.0	0.1	234.52	1.82	−89.70	1.70	−1184.80	2.00	−13.67	0.11	−20.94	0.16	−20.87	0.11	32.57	28.80	−7.7 N	−17.7 Y
HD 160934	RE J1738+611	HIP	86346	GJ 4020A	K7 -	17 38 39.63	61 14 16.01	−26.7	0.1	40.75	12.10	−21.80	3.00	43.70	3.00	−5.06	1.59	−23.88	0.45	−12.22	0.69	27.30	12.25	−1.7 Y	−11.0 N
HD 162283	BD−06 4663	HIP	87322	GJ 696	M0 -	17 50 34.03	−6 3 1.03	−21.0	2.0	45.67	2.06	−24.80	1.90	−131.50	2.20	−13.99	1.86	−19.27	0.96	−8.18	0.51	25.18	20.85	2.0 Y	−15.7 Y
	BD+18 3497	HIP	87768	GJ 698A	K5 -	17 55 44.89	18 30 1.37	−29.2	1.0	43.40	2.21	−45.94	1.74	−47.79	1.69	−15.69	0.73	−24.48	0.74	−7.72	0.42	30.08	18.85	4.8 N	−18.1 N
HD 166348	SAO 228799	HIP	89211	GJ 707	M0 V	18 12 21.39	−43 26 41.43	−2.0	1.3	77.18	1.23	133.10	1.10	−415.40	1.00	−9.05	1.26	−17.92	0.38	−17.86	0.40	26.87	26.40	6.9 N	−5.2 Y
HD 171488	V889 Her	HIP	91043		G2 V	18 34 20.10	18 41 24.23	−24.3	1.5	26.87	0.89	−20.71	0.66	−50.90	0.66	−8.67	1.02	−24.06	1.12	−5.52	0.34	26.16	21.54	−7.0 N	−20.5 Y
HD 174429	PZ Tel	HIP	92680		K0 V	18 53 5.87	−50 10 49.89	−0.1	2.0	20.14	1.18	15.80	1.10	−84.10	1.10	−7.64	1.88	−16.35	1.12	−8.96	0.95	20.15	20.18	−0.2 Y	−1.3 Y
HD 180809	tet Lyr	HIP	94713		K0 III	19 16 22.09	38 8 1.43	−29.7	0.3	4.24	0.49	−2.00	0.70	1.40	0.80	−10.61	0.86	−27.66	0.44	−3.47	0.89	29.83	7.68	1.8 N	−7.4 N
HD 181327	SAO 246056	HIP	95270		F6 V	19 22 58.94	−54 32 16.98	−0.5	2.0	19.77	0.81	24.10	1.40	−82.90	1.40	−9.84	1.77	−16.29	0.94	−8.15	1.00	20.70	20.70	−0.3 Y	−0.5 Y
HD 189245	HR 7631	HIP	98470	GJ 773.4	F7 V	20 0 20.25	−33 42 12.43	−8.2	5.0	47.90	1.06	130.70	1.20	−289.50	1.10	−13.49	4.37	−26.13	0.81	−13.80	2.40	32.48	32.61	−0.6 Y	−8.7 Y
HD 196982	AT Mic	HIP	102141	GJ 799A	dM4.5e -	20 41 51.15	−32 26 6.73	−3.7	3.0	97.80	4.65	269.32	6.55	−365.69	4.65	−9.61	2.40	−16.88	0.94	−11.00	1.91	22.32	22.50	1.2 Y	−4.8 Y
				GJ 799B	M4 -	20 41 48.00	−32 24 60.00	−2.7	3.0	97.80	4.65	269.32	6.55	−365.69	4.65	−8.81	2.40	−16.72	0.93	−11.60	1.90	22.18	22.50	1.2 Y	−4.8 Y
HD 197481	AU Mic	HIP	102409	GJ 803	M0 -	20 45 9.53	−31 20 27.24	−3.3	2.0	100.59	1.35	278.80	1.60	−360.00	1.60	−9.15	1.57	−16.21	0.42	−11.17	1.22	21.71	21.96	1.5 Y	−4.9 Y
HD 197890	BO Mic	HIP	102626		K0 V	20 47 45.01	−36 35 40.83	−6.5	1.0	22.52	1.64	18.40	1.20	−80.00	1.20	−7.11	0.82	−17.02	1.27	−0.81	0.77	18.46	16.32	−6.1 N	−2.3 Y
HD 199065A		HIP	103438		G2 V	20 57 22.44	−59 4 33.46	11.0	2.0	9.63	1.87	25.40	2.00	−54.90	1.90	−7.12	3.44	−28.52	5.14	−11.98	1.87	31.74	29.80	−5.7 Y	5.8 Y
HD 199065B					G5 V	20 57 21.86	−59 4 34.23	11.0	2.0	9.63	1.87	16.70	5.90	−57.00	5.70	−4.60	3.46	−29.69	5.81	−8.56	2.60	31.24	28.09	−9.8 N	5.5 Y
HD 202575	BD+08 4638	HIP	105038	GJ 824	K2 -	21 16 32.47	9 23 37.80	−18.0	1.0	61.83	1.06	143.40	1.60	−116.70	1.60	−10.60	0.47	−19.77	0.79	−4.67	0.52	22.91	18.03	−0.3 Y	−11.2 N
HD 202917	SAO 246975	HIP	105388		G5 -	21 20 49.96	−53 2 3.16	−1.0	2.0	21.81	1.17	30.30	1.50	−96.50	1.70	−7.91	1.47	−20.53	1.25	−0.67	1.40	22.01	20.58	−8.3 N	−3.0 Y
HD 202947	BS Ind	HIP	105404		K0 -	21 20 59.81	−52 28 40.03	6.0	2.0	21.72	1.45	35.40	1.50	−101.20	2.00	−3.81	1.55	−23.01	1.65	−6.28	1.42	24.15	22.16	−8.1 N	3.1 Y
	LO Peg	HIP	106231		K6 -	21 31 1.71	23 20 7.37	−17.4	1.0	39.91	1.18	135.00	1.10	−144.10	1.10	−5.20	0.29	−23.86	0.94	−16.01	0.78	29.20	30.07	−7.9 N	−20.4 Y
	BPM 14269	HIP	107345		M1 -	21 44 30.12	−60 58 38.88	2.0	2.0	23.66	2.85	41.20	2.50	−91.61	1.66	−7.74	1.73	−18.66	2.34	−1.01	1.43	20.23	19.59	−7.2 N	5.6 Y
HD 206860	HN Peg	HIP	107350	GJ 836.7	G0 V	21 44 31.33	14 46 18.98	−16.9	2.0	54.37	0.85	231.20	1.20	−113.90	1.10	−14.60	0.63	−21.38	1.66	−10.98	1.00	28.12	27.49	2.6 Y	−16.1 Y
HD 207485	BD+69 1195	HIP	107457		G5 V	21 45 52.64	70 20 53.03	−19.1	0.5	26.33	0.59	118.60	1.20	80.60	1.30	−18.63	0.62	−25.09	0.50	−7.40	0.27	32.11	34.46	7.0 N	−23.9 Y
HD 207129		HIP	107649	GJ 838	G0 V	21 48 15.75	−47 18 13.01	−6.5	1.3	63.95	0.78	165.40	0.90	−294.50	0.80	−13.27	0.85	−22.20	0.32	0.30	0.99	25.87	24.41	−6.3 N	−3.0 Y
HD 207377	SAO 247196	HIP	107806		G6 -	21 50 23.79	−58 18 18.18	13.5	2.0	24.46	1.02	49.10	1.30	−92.90	1.20	−0.63	1.34	−22.09	1.00	−10.41	1.45	24.43	20.06	−6.3 N	5.2 N
HD 207575	SAO 255093	HIP	107947		F6 -	21 52 9.72	−62 3 8.50	3.0	2.0	22.18	0.80	43.80	1.30	−90.20	1.30	−8.05	1.32	−20.04	1.02	−1.34	1.41	21.64	21.01	−7.7 N	6.5 Y
HD 208313	BD+31 4574	HIP	108156	GJ 840	K0 V	21 54 45.04	32 19 42.86	−13.9	0.4	49.21	0.93	209.30	1.60	−233.30	1.50	−2.72	0.17	−22.04	0.42	−24.73	0.59	33.24	35.75	−14.0 N	−23.7 N
HD 209458	BD+18 4917	HIP	108859		G0 V	22 3 10.77	18 53 3.57	−14.8	0.0	21.24	1.00	28.90	1.01	−18.37	0.97	−5.69	0.29	−15.64	0.21	0.58	0.41	16.65	9.22	−0.3 Y	−5.2 N
	V383 Lac				K1 V	22 20 7.03	49 30 11.76	−20.2	0.1	36.30	5.00	93.40	1.20	5.00	1.20	−7.06	1.43	−22.19	0.34	−3.90	0.86	23.61	15.90	2.5 Y	−10.5 N
	Wolf 1225	HIP	110526	GJ 856A	M0 Ve	22 23 29.09	32 27 33.47	−24.0	3.0	62.18	10.00	251.26	9.72	−207.57	18.50	−6.62	1.66	−30.94	3.17	−13.86	4.05	34.54	29.34	−7.3 N	−17.2 N
HD 213845	ups Aqr	HIP	111449	GJ 863.2	F7 V	22 34 41.64	−20 42 29.56	−1.9	0.9	43.97	0.75	221.40	0.70	−145.50	0.70	−15.08	0.46	−20.62	0.45	−12.93	0.81	28.63	28.43	3.4 Y	−2.0 Y
	BD+17 4799				K0 V/IV	22 44 41.54	17 54 18.30	−2.5	1.0	26.30	5.00	83.50	1.00	−79.40	1.00	−5.28	0.99	−13.45	2.32	−15.13	3.21	20.92	22.39	−4.5 Y	−9.5 N
	IL Aqr	HIP	113020	GJ 876	M4 -	22 53 16.73	−14 15 49.34	−1.9	0.0	212.69	2.10	960.20	1.60	−672.10	1.70	−12.54	0.13	−19.90	0.21	−11.51	0.14	26.19	26.17	1.4 Y	−2.1 Y
HD 217014	51 Peg	HIP	113357	GJ 882	G2.5 IVa	22 57 27.98	20 46 7.79	−33.3	0.0	65.10	0.76	207.90	0.70	59.80	0.60	−15.18	0.20	−29.72	0.04	15.61	0.06	36.84	11.89	11.4 N	−4.8 N
		HIP	114066	GJ 9809	M0 -	23 6 4.85	63 55 34.41	−23.5	1.3	40.09	1.48	175.90	3.30	−58.90	3.40	−6.85	0.87	−27.04	1.24	−15.99	0.75	32.15	26.75	−4.7 Y	−16.0 N
HD 220140	V368 Cep	HIP	115147		G9 V	23 19 26.64	79 0 12.67	−16.7	0.1	50.65	0.64	202.70	1.00	72.10	1.10	−10.16	0.25	−23.48	0.16	−5.45	0.10	26.16	23.80	6.1 N	−14.1 Y
HD 221503		HIP	116215	GJ 898	K5 -	23 32 49.40	−16 50 44.30	0.2	1.0	71.70	1.36	343.30	1.80	−218.60	1.70	−13.31	0.36	−21.25	0.53	−9.78	0.95	26.91	26.95	1.4 Y	2.1 Y
HD 222259	DS Tuc	HIP	116748		G5 V	23 39 39.49	−69 11 44.88	7.7	2.5	21.64	1.32	82.10	1.60	−88.30	1.90	−9.28	1.43	−25.85	1.90	1.65	1.90	27.51	26.96	−12.7 N	13.9 N

Table 3. Hyades supercluster.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 1237	SAO 258219	HIP	1292	GJ 3021	G6 V	0 16 12.68	−79 51 4.25	−5.8	0.0	56.76	0.53	433.88	0.53	−57.91	0.48	−33.11	0.29	−16.38	0.19	2.36	0.04	37.02	36.55	−4.4 N	−4.3 Y
HD 1835	BE Cet	HIP	1803	GJ 17.3	G3 V	0 22 51.79	−12 12 33.98	−6.8	2.0	49.05	0.91	393.90	1.10	61.00	1.00	−35.60	0.70	−15.76	0.63	3.84	1.92	39.12	38.50	1.7 Y	−1.1 Y
HD 4568	61 Psc	HIP	3730		F8 V	0 47 54.83	20 55 31.25	1.0	2.0	17.41	0.87	160.10	1.00	14.80	0.90	−38.63	2.16	−20.56	1.71	1.73	1.36	43.79	44.18	1.0 Y	6.1 Y
HD 4747	SAO 166607	HIP	3850	GJ 36	G9 V	0 49 26.77	−23 12 44.90	5.0	2.0	53.09	1.02	518.80	1.40	124.70	1.40	−45.14	0.94	−15.38	0.40	−4.59	2.00	47.91	47.53	4.2 Y	2.7 Y
	V388 Cas			GJ 51	M5 -	1 3 12.00	62 21 54.00	4.4	5.0	95.50	7.30	721.00	5.00	95.00	5.00	−31.87	3.61	−16.35	4.41	6.31	0.55	36.37	35.72	8.2 N	6.4 Y
HD 5848	HR 285	HIP	5372		K2 III	1 8 44.87	86 15 25.53	8.5	0.9	10.43	0.50	79.80	0.30	−10.70	0.30	−35.31	1.58	−12.77	1.17	1.36	0.40	37.57	36.83	2.0 Y	4.6 Y
HD 7788A	kap Tuc	HIP	5896	GJ 55.3A	F6 V	1 15 46.15	−68 52 33.50	9.2	2.0	48.94	0.53	404.90	3.30	108.30	3.00	−33.77	0.84	−22.15	1.21	−10.08	1.50	41.63	40.61	0.4 Y	1.0 N
	UV Cet			GJ 65A	dM5.5e -	1 39 1.00	−17 56 60.00	29.0	2.0	381.00	6.00	3321.00	0.00	551.00	0.00	−43.00	0.75	−19.25	0.31	−19.39	1.94	50.95	43.43	−2.1 Y	11.7 N
HD 11507		HIP	8768	GJ 79	K7 -	1 52 49.17	−22 26 5.46	14.8	1.3	90.17	1.37	845.30	1.80	0.40	1.80	−36.64	0.62	−28.92	0.46	−3.85	1.27	46.84	45.04	−11.5 N	13.7 Y
HD 13382	BD+20 341	HIP	10117		G5 V	2 10 8.03	−31 4 11.52	19.4	0.4	30.76	0.98	273.10	0.80	−12.60	0.70	−32.16	0.92	−32.92	0.92	−5.80	0.56	46.39	41.02	−16.3 N	13.2 N
HD 17051	iot Hor	HIP	12653	GJ 108	G0 V	2 42 33.47	−50 48 1.05	15.5	1.3	58.00	0.55	333.60	0.90	219.90	0.90	−31.27	0.31	−16.44	0.69	−7.67	1.11	36.15	33.89	0.8 Y	9.1 N
	VX Ari	HIP	12781	GJ 109	M3 -	2 44 15.51	25 31 24.15	30.0	1.0	132.41	2.48	862.50	2.50	−360.70	2.50	−39.91	0.84	−16.81	0.70	−12.03	0.53	44.95	39.54	−7.3 N	22.3 N
HD 17922	BD+42 646	HIP	13528		F5 -	2 54 14.11	42 35 19.64	25.5	2.0	19.45	1.04	201.40	1.00	−80.90	1.00	−51.15	2.34	−28.83	2.61	−1.03	0.67	58.72	62.03	0.6 Y	32.4 N
HD 18404	47 Ari	HIP	13834		F5 IV	2 58 5.22	20 40 7.44	28.1	2.0	31.41	0.84	234.70	0.60	−32.00	0.60	−41.55	1.65	−18.34	0.95	−2.20	1.16	45.47	45.51	0.3 Y	28.2 Y
HD 18632	BZ Cet	HIP	13976		G5 -	3 0 2.81	7 44 59.10	28.4	0.2	42.66	1.22	330.60	1.50	19.30	1.50	−42.43	0.72	−18.98	0.77	−0.87	0.63	46.49	47.62	0.8 Y	30.2 Y
HD 19290	BD+16 389				G0 -	3 6 42.60	17 28 40.79	25.0	1.0	13.00	5.00	100.20	1.10	21.60	1.10	−42.16	8.69	−12.73	7.21	9.07	8.98	44.96	46.67	12.0 N	30.4 Y
HD 19787	del Ari	HIP	14838		K2 III	3 11 37.77	19 43 36.03	24.7	0.9	19.44	1.23	154.50	0.30	−9.90	0.30	−39.94	1.47	−20.49	1.75	4.49	1.25	45.11	50.20	3.5 Y	33.3 N
HD 19902	BD+32 582	HIP	14976		G5 V	3 13 2.79	32 53 47.20	26.9	0.4	23.73	1.18	183.30	1.10	−63.10	1.10	−42.00	1.03	−21.43	1.64	−0.64	0.53	47.16	49.47	0.7 Y	30.8 Y
HD 20678	BD+32 608	HIP	15609		K0 V	3 20 59.45	33 13 6.00	34.2	0.4	25.21	1.06	169.90	1.00	−111.60	0.10	−45.41	0.77	−21.39	1.48	−10.56	0.18	51.29	48.85	−7.6 N	31.4 Y
HD 21531	BD−20 643	HIP	16134	GJ 142	K7 V	3 27 52.41	−19 48 16.15	35.0	1.3	79.26	2.25	535.00	1.40	304.10	1.50	−46.59	1.09	−19.09	0.49	−6.64	1.22	50.79	47.52	1.8 Y	30.1 Y
HD 21663	BD+19 547	HIP	16329	GJ 3230A	G5 V	3 30 30.43	20 6 11.78	25.2	0.4	21.61	1.48	162.40	0.70	−59.20	0.80	−36.09	1.09	−27.75	2.33	−0.57	0.89	45.53	53.83	−5.5 N	38.6 N
HD 22001	kap Ret	HIP	16245	GJ 143.2A	F5 V	3 29 22.68	−62 56 15.09	12.2	0.9	46.65	0.48	382.70	0.90	374.10	0.90	−50.74	0.56	−22.96	0.64	−2.12	0.65	55.73	55.82	−0.8 Y	12.6 Y
HD 22496		HIP	16711	GJ 146	K5 V	3 35 0.94	−48 25 8.89	19.5	2.0	74.86	0.83	404.40	1.10	309.20	1.10	−31.65	0.43	−19.97	1.21	−4.37	1.58	37.68	35.05	−3.2 Y	14.1 Y
HD 23356	BD−19 733	HIP	17420		K2 V	3 43 55.34	−19 6 39.24	25.3	0.5	71.17	0.91	308.70	1.50	156.70	1.40	−30.50	0.36	−14.88	0.21	−4.52	0.43	34.24	31.50	−0.9 Y	21.5 Y
HD 24357	HR 1201	HIP	18170		F4 V	3 53 10.05	17 19 37.51	35.0	5.0	35.00	5.00	144.60	0.60	−29.60	0.60	−37.98	4.52	−11.99	2.34	−6.19	2.71	40.31	32.21	0.1 Y	25.3 N
HD 25893	V491 Per	HIP	19255	GJ 160.1	–	4 7 34.35	38 4 28.36	26.5	2.0	48.59	1.17	174.40	2.40	−230.90	2.40	−33.18	1.86	−17.57	0.96	−9.48	0.45	38.72	38.94	−7.8 N	27.9 Y
HD 25998	V582 Per	HIP	19335	GJ 161.1	F7 V	4 8 36.62	38 2 23.04	24.8	2.0	46.87	0.77	166.80	1.20	−203.10	1.30	−31.32	1.86	−16.78	0.81	−7.71	0.39	36.36	37.23	−6.2 N	26.8 Y
HD 27282	BD+17 707	HIP	20146		G8 V	4 19 8.01	17 31 29.12	37.9	0.4	21.24	1.32	111.10	1.10	−27.40	1.10	−41.60	0.57	−18.90	1.33	−0.93	0.92	45.70	47.63	1.0 Y	40.2 Y
HD 27604	HR 1365	HIP	20109		F7 V	4 18 40.03	−52 51 36.34	20.7	2.0	13.49	0.52	47.10	1.10	74.20	1.00	−32.05	1.28	−17.45	1.45	−7.08	1.45	37.17	34.04	1.3 Y	14.4 N
HD 27685	BD+16 585	HIP	20441		G4 V	4 22 44.78	16 47 27.74	39.3	0.4	26.96	1.40	173.30	11.50	4.67	10.20	−45.91	1.43	−17.78	3.31	7.04	3.28	49.73	55.98	9.0 N	47.8 N
HD 27989	BD+18 636	HIP	20686		G5 V	4 25 51.73	18 51 50.62	39.2	0.4	23.08	1.22	108.20	1.00	−34.90	1.00	−41.91	0.48	−17.91	1.10	−2.20	0.70	45.63	44.95	0.6 Y	38.4 Y
				GJ 195A	M1-	5 17 23.73	45 50 22.97	31.2	0.5	72.00	4.00	58.50	5.00	−410.00	4.80	−37.84	0.66	−13.73	1.32	−9.82	0.76	41.43	39.02	−8.0 N	29.0 Y
HD 35171	111 TauB	HIP	25220	GJ 201	K2-	5 23 38.38	17 19 26.84	37.1	2.0	69.76	1.50	253.34	1.21	−4.66	0.76	−37.58	1.95	−14.41	0.34	7.30	0.49	40.90	45.80	9.5 N	43.5 N
HD 35296	V1119 Tau	HIP	25278	GJ 202	F8 V	5 24 25.46	17 23 0.72	36.5	2.0	68.19	0.94	250.90	0.80	−7.20	0.80	−36.94	1.95	−14.63	0.30	7.63	0.42	40.46	46.74	9.6 N	44.4 N
HD 37070	22 Cam	HIP	26587		F5-	5 39 5.40	56 21 36.15	20.0	5.0	16.64	0.79	9.90	1.00	−132.30	1.00	−35.17	4.52	−21.56	2.47	−11.27	1.39	42.76	48.10	−6.7 N	30.5 N
				GJ 3379	M4-	6 0 4.50	2 42 23.00	30.0	0.1	186.30	6.20	299.00	1.00	23.00	1.00	−26.70	0.09	−15.59	0.12	1.59	0.23	30.96	54.62	−3.6 Y	54.2 N
HD 41700	HR 2157	HIP	28764	GJ 9200	G0 V	6 4 28.44	−45 2 11.77	25.8	2.0	37.46	0.50	−82.40	0.70	247.10	0.70	−37.81	0.69	−10.41	1.71	−14.64	0.91	41.86	38.17	13.7 N	23.6 Y
HD 43931	BD+13 1199	HIP	30051		F7 V	6 19 25.41	13 26 2.17	39.0	5.0	11.60	0.97	20.40	1.40	−10.50	1.30	−34.99	4.78	−19.02	1.80	4.75	0.92	40.11	45.67	7.5 N	45.3 N
HD 45609	SAO 171781	HIP	30733		K0 V	6 27 24.10	−25 44 4.28	24.9	0.4	22.53	2.38	1.40	1.25	87.80	1.40	−28.98	1.62	−11.02	0.96	0.08	0.82	31.00	34.59	0.8 Y	29.3 Y
HD 52265	BD−05 1910	HIP	33719		G0 V	7 0 18.04	−5 22 1.77	53.8	0.0	35.63	0.84	−114.80	1.30	81.50	1.20	−52.32	0.27	−20.63	0.34	−9.08	0.29	56.97	69.46	−5.5 Y	67.1 N
HD 53532	BD+22 1569	HIP	34271		G0 V	7 6 16.80	22 41 0.56	41.9	0.4	22.77	1.03	−92.00	1.00	−77.80	0.90	−43.26	0.42	−17.93	0.47	−13.87	1.12	48.84	73.61	6.9 Y	69.5 N
HD 58895A	SAO 235171	HIP	35910		G3 IV	7 24 9.39	−58 29 31.01	19.7	2.0	20.61	0.53	−87.79	0.58	137.52	0.51	−36.88	0.97	−16.19	1.89	−13.19	0.68	42.38	39.41	−10.5 N	16.0 Y
HD 62576	1 Pup	HIP	37648		K5 III	7 43 32.39	−28 24 39.18	32.7	0.9	3.34	0.59	−13.90	3.10	29.70	2.80	−56.10	8.91	−9.06	4.44	2.50	4.61	56.88	72.15	5.5 Y	55.4 N
HD 65523	BD+13 1810	HIP	39068		G5 V	7 59 35.63	12 58 59.06	32.8	0.6	29.46	1.52	−236.10	1.20	−43.00	1.20	−43.11	1.01	−12.86	0.35	−23.30	1.88	50.66	93.32	1.9 Y	85.0 N
HD 70088	BD+34 1807	HIP	40942		G5 V	8 21 20.73	34 18 35.87	32.2	0.5	23.12	1.17	−118.80	2.20	−111.30	2.20	−39.92	0.84	−22.57	1.07	−6.92	1.35	46.38	53.12	−2.4 Y	41.4 N
HD 72760	BD−00 2024	HIP	42074	GJ 3507	G5 V	8 34 31.65	0 43 33.89	34.6	0.5	45.95	1.01	−197.50	1.00	18.90	0.90	−35.15	0.45	−19.38	0.35	−2.24	0.42	40.20	36.90	−2.7 Y	30.8 Y
HD 73322	BD−16 2525	HIP	42281		K1 V	8 37 15.54	−17 29 40.71	27.3	0.3	27.02	1.18	−115.20	1.50	59.70	1.30	−31.61	0.88	−15.82	0.43	−3.72	0.54	35.54	34.71	−2.3 Y	26.3 Y
HD 73171	HR 3408	HIP	42452		K1 III	8 39 17.62	52 42 41.84	27.3	2.0	8.21	0.80	−29.10	0.70	−30.70	0.70	−34.90	2.12	−10.37	1.67	4.04	1.81	36.63	30.25	0.1 Y	17.9 N
HD 75732	rho CncA	HIP	43587	GJ 324A	G8 V	8 52 35.81	28 19 50.96	27.3	0.5	79.80	0.84	−484.80	0.70	−233.50	0.70	−37.08	0.42	−18.10	0.18	−8.05	0.41	42.04	48.38	−0.6 Y	36.3 N
	BD+20 2233	HIP	43701		F5 V	8 54 0.50	20 13 49.44	32.7	3.3	10.07	1.28	−53.10	1.00	−3.20	0.90	−39.40	3.19	−11.99	1.26	−0.47	3.25	41.19	39.05	5.2 N	30.4 Y
	BD+17 1972	HIP	43751		G5 V	8 54 41.52	16 36 39.69	16.1	0.5	23.07	3.48	−134.10	1.30	−26.60	1.30	−27.50	2.50	−10.35	0.66	−13.61	3.50	32.38	45.43	−0.2 Y	35.7 N
		HIP	47620	GJ 360	M2-	9 42 34.84	70 2 2.02	6.9	0.5	85.14	3.18	−672.20	1.90	−268.30	2.00	−36.16	1.24	−13.08	0.67	−13.90	0.76	40.89	41.17	10.4 N	13.4 N
		HIP	47650	GJ 362	M3-	9 42 51.72	70 2 21.91	6.1	0.5	86.69	2.24	−667.30	2.10	−268.50	2.20	−34.91	0.87	−13.18	0.49	−13.86	0.57	39.81	40.22	10.0 N	13.1 N
HD 83983	BD+08 2257	HIP	47587		K0 V	9 42 9.93	7 35 24.53	29.7	0.3	23.01	1.24	−184.70	1.40	4.40	1.40	−44.08	1.67	−19.04	0.36	−5.01	1.43	48.28	50.31	−0.5 Y	32.9 Y
		HIP	47758	GJ 366.1AB	F7/8 V	9 44 12.10	−27 46 10.09	24.0	1.0	8.49	0.73	−51.60	0.60	36.40	0.60	−38.63	3.13	−17.81	1.03	3.11	0.69	42.65	40.67	4.7 N	20.8 Y
HD 85301	BD+49 1889	HIP	48423		G5 V	9 52 16.77	49 11 26.87	15.1	0.7	31.03	0.98	−213.70	1.20	−68.90	1.30	−34.76	0.94	−12.07	0.52	−7.13	0.82	37.48	38.79	5.1 N	18.8 Y
HD 85488		HIP	48411	GJ 371	K5-	9 52 11.36	3 13 18.66	21.2	5.0	47.69	1.53	−425.60	1.20	17.20	1.10	−42.74	2.46	−16.53	3.06	−11.91	3.39	47.35	53.67	−2.5 Y	33.1 N
HD 86590	DH Leo	HIP	49018	GJ 3580	− -	10 0 1.71	24 33 9.89	9.8	1.0	30.82	1.29	−234.37	1.11	−36.11	0.81	−32.15	1.27	−13.01	0.55	−14.95	1.24	37.77	44.69	0.7 Y	25.8 N
HD 86322	BD+75 399	HIP	49163		K1 III	10 1 59.32	74 45 32.72	6.4	2.0	7.18	0.66	−50.40	1.20	−37.30	1.30	−35.78	3.34	−21.52	2.71	−3.36	1.61	41.89	42.80	−2.5 Y	11.2 Y
HD 87598	BD+69 558	HIP	49686		G5 V	10 8 32.63	68 26 14.92	26.8	0.5	28.14	1.07	−262.00	1.20	−135.40	1.10	−54.39	1.53	−14.83	1.10	2.87	0.71	56.45	52.18	2.2 Y	16.1 N
HD 87978	BD−10 2998	HIP	49674		G5 V	10 8 26.58	−11 6 54.77	28.6	0.7	25.47	1.13	−181.00	1.50	35.20	1.20	−37.87	1.48	−23.68	0.57	0.62	0.91	44.67	40.14	−2.3 Y	20.9 N
HD 89376	BD+21 2172	HIP	50524		K5 V	10 19 10.64	20 33 48.26	23.1	2.0	16.86	2.13	−163.60	0.90	−19.90	0.90	−46.42	4.67	−21.70	1.96	−7.40	3.75	51.77	54.28	−1.5 Y	28.3 Y
	BD−09 3070	HIP	51007	GJ 390	M1-	10 25 10.84	−10 13 43.31	25.0	5.0	80.07	1.80	−693.90	1.70	120.20	1.60	−42.78	1.36	−22.99	3.77	−2.12	3.14	48.61	47.00	−2.3 Y	21.8 Y
HD 91706	BD−22 2952	HIP	51795		F6 V	10 34 57.70	−23 10 34.49	12.1	2.0	15.76	0.75	−99.10	1.10	33.80	1.10	−31.09	1.50	−13.00	1.74	−1.65	1.11	33.74	33.95	0.6 Y	12.7 Y
	RY Sex			GJ 398	M3.5	10 36 1.00	5 7 12.00	21.0	5.0	71.00	10.00	−634.00	0.00	95.00	0.00	−44.64	5.60	−16.60	2.85	−2.21	4.68	47.68	48.07	2.9 Y	22.1 Y
HD 94402	p01 Leo	HIP	53273		G8 III	10 53 43.71	−2 7 45.15	15.3	2.0	10.45	0.81	−83.35	0.84	15.00	0.72	−38.31	2.95	−15.47	1.40	−1.64	1.90	41.35	41.44	1.5 Y	15.6 Y
HD 98356	BD−09 3258	HIP	55235		K0 V	11 18 39.70	−10 7 34.29	7.5	0.3	23.64	1.25	−271.70	1.20	81.60	1.20	−55.56	2.98	−13.77	0.57	−3.96	0.61	57.38	58.37	7.1 N	14.9 N
HD 99322	HR 4409	HIP	55756		K0 III	11 25 29.45	−36 3 47.03	4.3	0.9	11.64	0.78	−108.30	0.70	17.60	0.70	−40.62	2.88	−17.96	1.27	−6.52	0.74	44.89	44.95	−3.7 Y	6.1 Y
	BD+23 2359	HIP	56238	GJ 430.1	M0.5	11 31 43.39	22 40 1.67	−5.0	0.5	61.76	1.56	−586.20	1.40	31.60	1.40	−39.16	1.04	−13.87	0.42	−18.15	0.59	45.34	46.52	1.6 Y	−11.7 N
HD 101112	HR 4478	HIP	56756		K1 III	11 38 9.83	8 53 1.64	11.1	2.0	8.74	0.82	−58.80	1.20	4.70	1.20	−30.25	3.02	−15.11	1.53	1.94	2.02	33.87	32.74	−0.1 Y	7.0 Y
	BD+48 1978	HIP	57859		K0 V	11 51 57.86	48 5 19.50	−2.1	0.3	20.16	3.04	−216.70	2.00	47.20	1.90	−47.64	7.38	−12.48	2.00	−17.28	2.39	52.19	51.43	12.5 N	−9.1 N
HD 103847	BD+20 2661	HIP	58314		G5 V	11 57 28.93	19 59 2.05	4.8	0.5	34.39	1.16	−386.30	0.90	54.10	0.90	−50.63	1.74	−17.92	0.62	−5.41	0.60	53.98	54.21	3.8 Y	7.9 Y
HD 106023	BD+23 2431	HIP	59486		K0 V	12 11 59.41	23 5 35.45	5.8	0.4	22.75	1.16	−247.70	0.90	−28.60	0.90	−42.55	2.16	−30.26	1.53	−2.60	0.58	52.28	51.14	−10.3 N	4.7 Y
HD 106453	SAO 180598	HIP	59707		K0+ V	12 14 42.12	−24 46 30.67	−12.5	0.5	35.56	0.83	−295.30	1.40	−32.80	1.20	−36.25	0.81	−11.65	0.63	−16.59	0.39	41.53	38.56	−9.1 N	−0.4 N
HD 108147	SAO 251899	HIP	60644		F8/G0 V	12 25 46.27	−64 1 19.52	−5.1	0.0	25.93	0.69	−181.60	0.65	−60.80	0.53	−30.34	0.75	−11.34	0.43	−14.24	0.41	35.38	32.87	−12.5 N	−3.5 Y
HD 109200		HIP	61291	GJ 472	K1 V	12 33 31.38	−68 45 20.90	0.3	5.0	61.83	0.63	−546.10	1.90	−310.60	1.70	−35.55	2.61	−18.73	4.25	−26.57	0.60	48.17	42.11	−23.9 N	5.1 Y
		HIP	61629	GJ 479	M2-	12 37 52.23	−52 0 5.27	3.0	2.5	103.54	2.10	−1023.60	2.90	31.30	2.60	−38.65	1.51	−26.71	2.17	−0.50	0.48	46.98	47.26	0.4 Y	6.0 Y

Table 3. – *continued*

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
	DT Vir	HIP	63510	GJ 494Aa	M2 Ve	13 0 46.57	12 22 32.55	−10.1	5.0	87.50	1.51	−640.10	1.50	−25.10	1.40	−29.74	1.00	−18.54	1.03	−8.85	4.83	36.15	34.40	−6.4 N	−4.5 Y
HD 120136	tau Boo	HIP	67275	GJ 527A	F6 IV	13 47 15.74	17 27 24.84	−16.1	0.5	64.12	0.70	−480.80	0.40	50.40	0.40	−33.51	0.35	−19.03	0.22	−7.18	0.49	39.20	37.22	−4.3 N	−11.3 Y
HD 120780	SAO 241249	HIP	67742	GJ 531	K1 V	13 52 35.86	−50 55 18.18	−25.0	2.0	60.86	0.95	−596.40	1.10	−45.90	1.00	−51.41	1.44	−12.05	1.52	2.81	0.40	52.88	48.64	7.3 N	−15.8 N
HD 126535	BD−18 3821	HIP	70608		K1 V	14 26 34.70	−18 49 12.20	−19.9	0.3	22.29	1.46	−186.70	0.90	1.80	0.90	−40.39	1.80	−18.36	1.76	2.11	1.04	44.42	46.22	3.0 Y	−23.8 Y
HD 131023	BD+10 2752	HIP	72634	GJ 3868A	K0 V	14 51 2.31	9 43 25.19	−36.0	1.0	36.73	1.26	−217.50	1.20	54.60	1.30	−40.60	0.94	−15.71	0.53	−15.45	0.99	46.19	35.13	−0.4 Y	−19.9 N
HD 134319	BD+64 1046	HIP	73869	GJ 577	G5 -	15 5 49.90	64 2 49.94	−6.5	0.1	22.59	0.68	−123.30	1.10	110.10	1.20	−32.45	1.05	−13.59	0.35	−2.82	0.20	35.29	35.24	1.2 Y	−6.4 Y
	BD+32 2572	HIP	75011		K0 V	15 19 40.14	31 50 33.04	−26.6	0.4	22.27	1.23	−181.20	1.40	141.20	1.40	−52.69	2.45	−17.89	0.53	−1.38	1.24	55.66	57.24	4.4 Y	−30.1 Y
HD 149028	BD+12 3031	HIP	80936		G V	16 31 37.07	12 25 17.58	−32.5	0.5	20.62	1.21	−85.50	0.80	56.40	0.90	−36.86	0.93	−15.86	0.36	−0.68	1.17	40.13	42.39	0.3 Y	−35.3 Y
HD 152178	V2253 Oph	HIP	82583		G8/K0 Vp	16 52 56.01	−26 45 2.34	−34.8	0.5	2.12	1.24	0.90	1.30	−13.10	1.30	−32.24	1.37	−19.17	13.58	−25.81	11.98	45.53	34.09	−24.0 N	−29.6 Y
HD 152260	SAO 257449	HIP	83247		G0 V	17 0 54.65	−76 13 7.41	−0.6	5.0	17.67	0.67	−33.60	0.80	−159.10	0.80	−32.61	3.59	−25.14	3.42	−14.43	1.83	43.63	45.53	−7.6 N	−15.1 N
	V647 Her	HIP	84794	GJ 669A	M4-	17 19 54.21	26 30 3.03	−33.6	1.0	83.01	6.03	−217.60	2.10	348.80	2.00	−36.47	1.41	−18.61	0.70	−2.00	1.23	40.99	39.37	−1.8 Y	−31.7 Y
HD 158972	BD+44 2721	HIP	85639		K0 V	17 30 5.33	44 31 9.95	−29.7	0.4	25.28	0.81	−13.20	0.90	133.90	1.00	−32.60	0.83	−18.15	0.39	−11.26	0.31	38.97	31.20	5.0 N	−19.0 N
HD 168603	BD+33 3073	HIP	89771		K0 V	18 19 8.82	33 13 52.55	−34.0	0.5	27.21	0.86	5.90	1.40	134.80	1.60	−36.39	0.77	−18.79	0.54	−5.61	0.40	41.34	36.65	1.8 Y	−28.2 Y
HD 171759	zet Pav	HIP	91792		K0 III	18 43 2.14	−71 25 41.20	−16.3	0.9	15.55	0.55	1.10	0.70	−156.80	0.60	−43.00	1.31	−26.42	1.37	−1.84	0.53	50.50	52.55	−4.0 Y	−22.2 Y
HD 177720	SAO 245938	HIP	94051		G0 -	19 8 51.12	−54 2 17.52	−30.0	2.0	14.60	1.20	2.50	1.30	−65.80	1.60	−34.49	1.90	−10.90	1.80	6.99	1.02	36.84	27.88	−4.7 N	−18.5 N
HD 177996		HIP	94050	GJ 4096	K1 V	19 8 50.49	−42 25 41.19	−32.0	2.5	31.48	1.97	23.70	1.00	−121.50	0.90	−34.44	2.35	−13.29	1.04	2.95	1.06	37.03	30.51	−2.5 Y	−24.3 N
HD 180161	BD+57 1961	HIP	94346	GJ 1233	G8 V	19 12 11.36	57 40 19.13	−27.9	0.4	50.00	0.54	217.50	0.90	408.60	0.90	−44.04	0.49	−22.74	0.38	−15.75	0.18	52.01	46.85	−11.2 N	−19.9 N
HD 179949	HR 7291	HIP	94645	GJ 749	F8 V	19 15 33.23	−24 10 45.66	−25.5	0.5	36.97	0.80	116.60	0.90	−101.70	0.90	−27.43	0.48	−12.86	0.23	−11.22	0.44	32.31	52.80	4.1 Y	−49.1 N
HD 181943	V4371 Sgr	HIP	95266		K1 V	19 22 57.26	−14 15 32.04	−32.1	1.0	12.91	1.28	58.30	1.40	−7.80	1.30	−35.57	1.17	−8.45	0.75	−12.65	2.15	38.69	72.17	7.0 Y	−69.2 N
HD 183870	BD−11 5030	HIP	96085	GJ 1240	K2 V	19 32 6.71	−11 16 29.79	−49.6	0.5	55.50	0.90	236.70	1.10	18.60	1.20	−51.19	0.46	−15.04	0.27	−4.98	0.32	53.59	63.86	6.6 N	−60.9 N
HD 187565	BD+29 3760	HIP	97543		F8 V	19 49 31.64	29 22 29.93	−23.0	10.0	10.32	0.93	40.30	1.40	34.50	1.30	−30.43	4.61	−11.09	9.13	−8.59	1.02	33.51	35.42	−6.8 N	−26.6 Y
HD 189087	BD+29 3820	HIP	98192	GJ 773.2	K1 V	19 57 13.41	29 49 26.52	−29.9	0.5	39.24	0.97	96.00	1.30	242.60	1.20	−40.39	0.78	−15.16	0.56	5.12	0.23	43.44	45.15	7.6 N	−33.2 Y
HD 192886	HR 7749	HIP	100184		F5 V	20 19 17.85	−47 34 49.04	−30.8	2.0	33.91	0.87	190.60	1.10	−182.50	1.00	−44.32	1.72	−17.47	0.64	−6.29	1.30	48.05	49.46	3.9 Y	−33.2 Y
	HU Del			GJ 791.2A	M4.5	20 29 49.00	9 41 30.00	−29.0	0.5	113.80	1.90	674.00	5.00	121.00	5.00	−35.60	0.46	−15.76	0.42	−11.78	0.42	40.68	47.49	−7.8 N	−38.8 N
	BD+33 3930	HIP	101227		K0 V	20 31 7.77	33 32 34.52	−25.2	0.4	22.38	1.16	65.00	1.40	101.80	1.40	−31.54	1.35	−16.89	0.55	3.08	0.34	35.91	32.79	4.6 N	−21.0 Y
HD 195818	SAO 246651	HIP	101636		G0 -	20 36 2.35	−54 56 29.09	−22.5	2.0	15.16	1.20	49.90	1.60	−82.70	1.80	−32.93	2.02	−18.10	2.06	2.53	1.54	37.66	36.22	−5.3 N	−20.7 Y
HD 197039	BD+15 4227	HIP	102029		F5 -	20 40 35.31	15 38 35.70	−32.5	2.0	14.36	0.88	91.40	0.80	46.90	0.90	−43.66	2.02	−16.03	1.82	−6.59	1.16	46.97	52.20	−2.1 Y	−39.7 N
HD 200560	BD+45 3371	HIP	103859	GJ 816.1A	K2 -	21 2 40.75	45 53 5.17	−14.5	0.2	51.65	0.72	396.10	0.80	141.00	0.80	−34.50	0.48	−12.94	0.20	−18.48	0.28	41.22	39.15	−16.4 N	−17.7 Y
HD 200968	BD−14 5936	HIP	104239	GJ 819A	K1 V	21 7 10.38	−13 55 22.50	−33.2	0.4	56.67	1.18	382.30	0.90	−39.90	0.80	−42.29	0.52	−17.96	0.21	−5.04	0.58	46.22	49.23	0.2 Y	−37.3 Y
HD 202605	BD−01 4138	HIP	105066		K0 V	21 17 2.13	−1 4 38.73	−23.2	0.3	23.33	1.32	160.50	0.80	−23.30	0.80	−32.98	1.21	−19.16	0.35	−13.02	1.49	40.30	45.89	−9.4 N	−33.3 N
HD 203842	HR 8191	HIP	105695		F5 III	21 24 24.56	10 10 27.31	−33.2	2.0	9.47	0.78	72.20	1.40	20.60	1.40	−45.33	3.01	−21.00	1.70	−4.30	2.16	50.14	50.59	−1.7 Y	−33.9 Y
HD 205067		HIP	106438		G2 V	21 33 30.98	−27 53 24.93	−26.6	20.0	21.19	0.95	200.70	1.70	−63.50	1.60	−47.27	13.04	−22.84	4.79	−12.99	14.57	54.08	61.78	−1.0 Y	−40.0 N
	BD−05 5715	HIP	109388	GJ 849	M3.5 -	22 9 40.35	−4 38 26.62	−15.3	0.5	113.97	2.10	1136.10	1.80	−21.80	2.10	−43.40	0.73	−17.44	0.34	−16.75	0.63	49.68	56.61	−4.8 Y	−31.5 N
HD 212754	34 Peg	HIP	110785		F7 V	22 26 37.39	4 23 37.54	−17.8	2.0	25.34	1.66	291.50	1.10	50.70	1.10	−54.30	3.33	−17.19	1.42	−11.71	2.09	58.15	62.96	0.0 Y	−30.0 N
		HIP	111766	GJ 865	M3.5 -	22 38 29.75	−65 22 42.62	−11.0	10.0	67.44	6.47	833.29	5.04	−160.20	6.28	−55.39	7.23	−19.54	4.85	−15.12	7.59	60.65	61.15	11.2 N	−17.5 Y
HD 215274	BD+29 4742	HIP	112219		G5 V	22 43 40.47	30 5 33.07	−9.8	0.4	22.27	0.97	241.10	1.20	25.90	1.10	−45.84	2.06	−20.28	0.63	−15.74	0.93	52.54	52.89	−11.5 N	−16.3 N
HD 217382	BD+83 640	HIP	113116		K4 III	22 54 24.96	84 20 46.24	2.9	0.9	8.35	0.48	98.00	0.30	23.80	0.40	−52.07	2.96	−20.72	1.52	−12.06	0.87	57.32	56.67	−9.2 N	4.3 Y
HD 222143	BD+45 4288	HIP	116613	GJ 4351	G3/4 V	23 37 58.49	46 11 57.97	2.0	0.8	43.26	0.80	356.90	1.20	−12.00	1.20	−34.40	0.72	−13.82	0.79	−12.69	0.34	39.18	37.90	−10.0 N	2.1 Y
HD 222422	BD−19 6489	HIP	116819		G5 V	23 40 37.85	−18 59 20.04	10.6	0.4	38.11	1.00	303.50	1.30	−43.60	1.10	−28.72	0.84	−17.19	0.57	−21.13	0.48	39.58	38.33	−7.2 N	8.2 Y
HD 223252	20 Psc	HIP	117375		G8 III	23 47 56.54	−2 45 41.76	−6.9	2.0	11.19	0.85	96.50	0.50	5.40	0.50	−36.98	2.83	−18.65	1.53	−2.95	1.89	41.52	41.43	−2.1 Y	−6.7 Y
	BD+45 4378	HIP	118212	GJ 913	M0-	23 58 43.49	46 43 44.97	3.6	1.0	57.62	2.82	646.70	1.30	−4.70	1.30	−47.76	2.32	−20.40	1.46	−12.10	0.62	53.33	52.48	−8.7 N	0.4 Y

Table 4. Ursa Major moving group.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 745	BD+08 13	HIP	954		G5 III	0 11 47.53	9 8 23.86	−1.8	0.3	7.81	0.96	−34.70	1.30	−18.40	1.40	23.79	3.10	1.44	0.91	−1.93	0.76	23.91	24.10	7.7 N	−8.5 N
HD 2410	46 Psc	HIP	2213		gG7 -	0 27 58.47	19 30 50.53	8.3	2.0	6.12	0.79	−22.20	0.80	−18.80	0.80	18.05	2.85	5.98	1.42	−14.66	1.86	24.01	22.75	2.6 N	4.1 Y
HD 11131	khi CetB	HIP	8486	GJ 9061B	G0 -	1 49 23.34	−10 42 12.73	−4.2	0.2	43.47	4.48	−150.00	0.90	−91.10	0.90	19.31	1.86	2.07	0.29	−2.59	0.70	19.59	19.73	1.9 Y	−5.1 Y
HD 11171	khi CetA	HIP	8497	GJ 9061A	F3 III	1 49 35.10	−10 41 11.09	−0.9	1.5	42.35	0.87	−148.10	0.70	−95.70	0.70	18.74	0.66	1.91	0.18	−5.95	1.40	19.75	20.39	1.4 Y	−5.3 Y
HD 13594	HR 647	HIP	10403		F4 V	2 14 2.43	47 29 3.35	−8.1	1.5	24.07	0.96	−77.30	1.60	−53.30	1.50	15.75	1.17	0.42	1.06	−12.62	0.79	20.19	20.23	−1.3 Y	−8.3 Y
HD 13959	BD+05 307	HIP	10552	GJ 91.1	K4 V	2 15 53.39	6 37 34.83	0.2	0.1	26.37	3.69	−111.30	1.70	−56.00	1.60	17.98	2.69	5.67	1.01	−12.09	1.80	22.40	21.94	4.5 N	0.3 Y
HD 14274	BD+33 406	HIP	10820		G5 III	2 19 17.03	34 1 57.94	−5.9	0.2	3.41	1.10	−8.10	1.40	2.30	1.50	11.67	2.91	5.79	3.80	1.47	2.18	13.11	7.86	9.0 N	−2.4 Y
HD 24160	g Eri	HIP	17874		G9 III	3 49 27.24	−36 12 0.88	2.0	1.0	15.54	0.58	−51.20	0.70	−53.60	0.80	19.74	0.89	0.38	0.57	−11.19	0.87	22.69	22.80	−2.0 Y	3.6 Y
HD 24916	BD−01 565	HIP	18512	GJ 157A	K4 V	3 57 28.70	−1 9 34.04	4.3	0.9	63.41	2.00	−181.90	1.00	−141.90	1.00	7.40	0.79	0.34	0.17	−16.16	0.73	17.78	17.90	0.7 Y	4.9 Y
HD 26913	V891 Tau	HIP	19855		G8 V	4 15 25.79	6 11 58.75	−7.1	0.1	47.86	1.15	−102.60	1.00	−112.80	1.10	13.89	0.22	−1.31	0.15	−9.17	0.34	16.70	16.33	−2.3 N	−6.6 Y
HD 26923	V774 Tau	HIP	19859		G0 IV	4 15 28.80	6 11 12.71	−7.1	0.1	47.20	1.08	−111.10	1.40	−106.30	1.40	14.02	0.23	−0.29	0.18	−9.60	0.35	16.99	16.83	−1.2 Y	−6.8 Y
HD 28495	BD+64 458	HIP	21276	GJ 3295	G0 V	4 33 54.26	64 37 59.51	−11.0	0.3	36.32	1.07	−80.00	1.70	40.70	1.70	14.44	0.35	2.99	0.43	−6.38	0.31	16.07	16.12	3.8 N	−11.7 Y
HD 29697	V834 Tau	HIP	21818	GJ 174	K3 V	4 41 18.85	20 54 5.44	0.4	0.3	74.13	1.24	−233.90	0.90	−254.30	0.80	5.71	0.31	−3.60	0.09	−21.04	0.37	22.09	26.98	−5.6 N	16.5 N
	alf CaeB	HIP	21770	GJ 174.1B	G2 V	4 40 33.71	−41 51 49.51	−0.6	0.9	49.67	0.53	−141.18	0.53	−74.95	0.49	10.07	0.30	5.93	0.62	−9.82	0.61	15.26	14.42	5.2 N	−1.5 Y
HD 31000	BD+36 958	HIP	22776		G5 V	4 53 56.21	36 45 26.76	−6.2	0.4	35.14	1.12	7.60	1.10	11.90	1.20	6.03	0.39	−0.73	0.20	2.28	0.20	6.49	2.20	1.2 N	−1.6 Y
HD 33564	BD+79 169	HIP	25110	GJ 196	F6 V	5 22 33.53	79 13 52.13	−9.9	0.9	47.66	0.52	−78.50	0.70	161.00	0.70	19.25	0.59	5.65	0.62	−3.59	0.35	20.38	21.96	8.7 N	−15.5 Y
HD 38393	gam LepA	HIP	27072	GJ 216A	F6 V	5 44 27.79	−22 26 54.18	−9.7	0.9	111.49	0.60	−292.43	0.46	−368.46	0.41	18.35	0.57	4.59	0.60	−11.68	0.38	22.23	20.92	1.7 Y	−6.4 Y
	gam LepB			GJ 216B	K2 V	5 44 26.54	−22 25 18.77	−9.7	0.9	111.49	0.60	−303.70	2.60	−358.00	2.60	18.00	0.57	5.07	0.60	−11.95	0.39	22.19	20.81	2.3 N	−6.3 Y
HD 41593	V1386 Ori	HIP	28954	GJ 227	K0 V	6 6 40.48	15 32 31.58	−9.8	0.1	64.71	0.91	−120.10	1.00	−103.00	1.10	10.55	0.10	0.25	0.10	−10.91	0.20	15.18	18.30	0.3 Y	−14.2 Y
HD 56168	BD+67 483	HIP	35628		K0 V	7 21 6.73	67 39 42.60	−9.1	0.5	39.10	1.15	−70.80	1.00	69.50	1.10	8.49	0.39	5.38	0.40	−11.25	0.33	15.09	22.12	−3.6 N	−18.9 N
HD 59747	BD+37 1738	HIP	36704		G5 V	7 33 0.58	37 1 47.46	−16.2	0.4	50.80	1.29	−49.60	1.40	10.00	1.40	13.07	0.37	2.70	0.17	−10.33	0.24	16.88	21.32	1.7 Y	−20.9 Y
HD 60491	BD−06 2184	HIP	36827		K2 V	7 34 26.17	−6 53 48.04	−9.7	0.7	40.32	1.26	−80.90	1.10	−42.50	1.10	5.99	0.51	5.97	0.50	−11.75	0.40	14.48	10.11	7.8 N	−6.9 Y
HD 61606	BD−03 2001	HIP	37349	GJ 282A	K2 V	7 39 59.33	−3 35 51.01	−18.5	0.4	70.44	0.94	71.70	1.20	−276.10	1.30	25.52	0.35	−2.23	0.34	−7.40	0.13	26.66	24.22	−9.5 N	−17.6 Y
HD 63433	BD+27 1490	HIP	38228		G5 IV	7 49 55.06	27 21 47.45	−15.7	20.0	45.84	0.89	−9.20	1.20	−12.50	1.10	13.62	17.76	2.29	4.19	−7.63	8.18	15.78	6.62	0.0 Y	−6.4 N
HD 64942	BD−09 2287	HIP	38747		G5 V	7 55 58.23	−9 47 49.94	−8.1	0.8	20.69	1.15	23.40	1.30	−24.90	1.20	11.18	0.68	1.30	0.69	0.43	0.36	11.26	6.28	−6.2 N	−4.1 Y
HD 71974	BD+35 1834	HIP	41820		G5 V	8 31 35.03	34 57 58.44	−15.4	0.6	34.83	1.37	−5.90	1.40	16.90	1.50	12.03	0.50	4.03	0.24	−9.06	0.38	15.59	40.44	1.0 Y	−40.4 N
HD 72905	pi1 UMa	HIP	42438	GJ 311	G1.5 Vb	8 39 11.70	65 1 15.27	−14.4	0.1	70.07	0.71	−28.90	1.00	88.50	1.00	11.24	0.09	−0.10	0.10	−10.99	0.09	15.72	13.00	2.2 N	−11.6 Y
HD 75605	HR 3512	HIP	43352		G5 III	8 49 51.50	−32 46 49.89	−7.8	1.5	14.26	1.25	0.50	1.10	−48.00	1.00	13.78	1.18	3.18	1.49	−10.74	0.97	17.76	16.85	−0.8 Y	−5.5 Y
HD 75935	SAO 80487	HIP	43670		G8 V	8 53 49.94	26 54 47.69	−19.0	0.6	24.66	1.34	13.40	1.10	−5.30	1.10	16.08	0.50	3.68	0.27	−9.83	0.44	19.20	8.85	2.1 N	−8.7 N
HD 76218	BD+36 1888	HIP	43852		G5 V	8 55 55.68	36 11 46.27	−12.8	0.5	38.21	1.00	−24.70	1.20	−13.00	1.30	7.84	0.40	−0.26	0.17	−10.69	0.35	13.26	24.66	−2.7 N	−24.6 N
HD 80388	BD+79 305	HIP	46298		G1 V	9 26 28.76	78 26 16.09	−12.0	5.0	19.20	0.88	29.70	1.10	26.20	1.10	14.70	2.91	−1.71	3.01	−4.55	2.81	15.48	12.66	−5.2 N	−9.6 Y
HD 81659	BD−13 2855	HIP	46324		G6/G8 V	9 26 42.83	−14 29 26.67	−16.8	0.5	25.07	1.00	37.20	1.10	−129.70	1.10	25.68	0.86	0.57	0.69	−16.53	0.50	30.55	31.46	1.3 Y	−18.5 Y
HD 85444	39 Hya	HIP	48356		G7 III	9 51 28.69	−14 50 47.80	−13.5	1.5	11.92	0.81	17.80	0.80	−25.30	0.70	15.01	1.00	6.36	1.30	−8.24	0.81	18.27	14.21	3.5 N	−7.9 Y
HD 85512	SAO 221544	HIP	48331	GJ 370	K-M V	9 51 7.05	−43 30 10.01	−9.6	2.0	89.67	0.82	461.60	1.10	−469.90	1.10	34.36	0.34	10.00	1.98	−4.95	0.29	36.13	30.61	17.0 N	−3.5 N
	BD+03 2316	HIP	49544	GJ 378.2	K7 -	10 6 56.86	2 57 51.90	−15.7	0.5	44.77	1.96	−67.60	1.50	−96.00	1.50	5.15	0.26	0.47	0.54	−19.35	0.55	20.03	8.40	−11.1 N	−6.3 N
HD 88355	34 Leo	HIP	49929		F6 V	10 11 38.21	13 21 18.42	−16.0	2.0	14.49	0.84	37.80	0.80	−35.20	0.80	21.64	1.26	−0.72	1.05	−8.53	1.56	23.27	30.52	2.9 Y	−25.6 N
HD 88654	BD−07 2985	HIP	50061		G5 V	10 13 16.43	−8 26 43.98	−7.0	0.4	10.80	0.96	23.00	0.90	−30.00	0.90	16.97	1.46	−1.51	0.76	−5.83	0.46	18.01	20.53	3.6 N	−12.6 Y
HD 89025	zet Leo	HIP	50335		F0 III	10 16 41.42	23 25 2.32	−15.0	1.5	12.56	0.78	19.84	0.98	−7.30	0.50	14.37	0.93	3.13	0.49	−8.51	1.27	16.99	16.84	2.7 N	−15.1 Y
HD 91480	37 UMa	HIP	51814		F1 V	10 35 9.69	57 4 57.49	−10.4	0.5	37.80	0.61	65.65	0.45	37.11	0.38	12.40	0.30	3.25	0.18	−5.77	0.40	14.06	20.42	−0.1 Y	−18.1 N
HD 95650	DS Leo	HIP	53985	GJ 410	dM2e -	11 2 38.34	21 58 1.70	−13.9	2.0	85.76	1.36	141.10	1.20	−51.50	1.20	12.43	0.68	3.51	0.54	−9.76	1.81	16.19	13.68	2.2 N	−11.1 Y
HD 98712	SZ Crt	HIP	55454	GJ 425A	K4/5 V	11 21 26.67	−20 27 13.61	3.7	5.0	76.00	1.70	181.70	1.40	−117.50	1.40	13.73	0.52	−2.57	3.94	0.88	3.06	14.00	13.16	5.3 N	4.4 Y
HD 100043	BD−12 3442	HIP	56154		F2 V	11 30 38.77	−13 3 0.96	−1.8	0.0	15.56	0.82	31.40	1.10	−52.00	1.20	15.93	0.97	−4.69	0.45	−8.36	0.50	18.59	20.16	−1.9 Y	−8.2 N
HD 100310	BD+53 1497	HIP	56337		K0 V	11 32 57.06	52 31 25.37	−9.6	0.4	22.33	1.22	60.60	0.80	−9.60	0.90	15.73	0.70	0.61	0.29	−3.74	0.45	16.18	22.37	−3.5 N	−18.5 N
HD 102070	zeta Crt	HIP	57283		G8 IIIa	11 44 45.78	−18 21 2.46	−2.6	1.5	9.31	0.81	29.60	0.40	−28.40	0.50	19.46	1.82	0.22	1.13	−8.02	1.18	21.05	21.71	3.0 N	−6.6 Y
	FI Vir	HIP	57548	GJ 447	M4 -	11 47 44.40	0 48 16.43	−13.0	5.0	299.59	2.20	605.66	2.29	−1219.32	1.68	17.71	0.14	−3.96	2.53	−17.43	4.31	25.16	24.17	−6.5 N	−12.8 Y
HD 238087	BD+59 1428	HIP	59496	GJ 457	K5 -	12 12 5.21	58 55 35.12	−14.2	10.0	35.24	1.24	96.40	1.70	13.80	1.80	15.79	3.65	1.92	3.99	−10.96	8.43	19.32	20.24	0.4 Y	−15.4 Y
	BD+19 2531	HIP	59152		K2 V	12 7 50.92	18 56 55.82	−5.5	0.4	25.27	1.40	119.70	1.00	−72.80	1.10	26.61	1.49	−0.25	0.24	−3.60	0.41	26.85	34.19	1.4 Y	−21.9 N
HD 238090	BD+55 1519	HIP	59514	GJ 458A	M0 -	12 12 20.86	54 29 8.71	−13.9	5.0	65.29	1.47	233.10	1.50	91.50	1.50	16.95	1.70	8.73	1.71	−12.67	4.40	22.89	26.47	6.4 N	−20.3 N
HD 109647	BD+52 1638	HIP	61481		K0 -	12 35 51.28	51 13 17.30	−9.0	0.3	38.08	1.11	108.80	1.20	−4.80	1.20	14.16	0.40	3.64	0.28	−7.14	0.28	16.27	19.53	1.1 Y	−14.1 Y
HD 109799	HR 4803	HIP	61621		F1 IV	12 37 42.28	−27 8 19.99	−0.9	1.5	28.91	0.75	80.40	0.90	−93.70	0.90	16.12	0.77	0.18	1.07	−12.28	0.94	20.27	20.25	−1.1 Y	−1.1 Y

Table 4. – *continued*

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 110463	BD+56 1618	HIP	61946	GJ 3743	K3 V	12 41 44.52	55 43 28.83	−9.7	0.3	43.06	0.82	122.50	1.40	−5.60	1.40	14.45	0.29	2.87	0.23	−7.71	0.27	16.63	19.35	0.2 Y	−13.9 Y
HD 111456	BD+61 1320	HIP	62512	GJ 9417	F6 V	12 48 39.46	60 19 11.61	−12.0	1.5	41.39	3.20	108.70	1.30	−1.10	1.40	14.17	0.96	1.15	0.88	−9.84	1.26	17.29	17.61	0.0 Y	−12.5 Y
HD 112196	BD+22 2522	HIP	63008		F8 V	12 54 40.02	22 6 28.55	−8.0	0.0	29.19	1.60	52.10	0.90	−33.90	0.90	9.61	0.61	0.59	0.17	−8.56	0.04	12.88	11.95	−0.2 Y	−6.4 Y
HD 113139	78 UMa	HIP	63503		F2 V	13 0 43.70	56 21 58.82	−9.8	0.5	40.06	0.60	108.36	0.50	2.67	0.51	12.88	0.22	3.25	0.25	−9.16	0.44	16.14	17.42	1.8 N	−11.9 Y
HD 114723	BD+32 2327	HIP	64405		F8 -	13 12 2.02	32 5 7.88	−12.7	2.0	12.82	1.48	15.30	2.00	−6.40	1.80	5.78	1.15	−0.12	0.81	−12.87	1.99	14.11	7.37	0.5 Y	−4.1 N
HD 115043	BD+57 1425	HIP	64532	GJ 503.2	G2 V	13 13 37.01	56 42 29.76	−9.3	0.3	38.92	0.67	112.80	0.90	−19.50	1.00	14.52	0.26	2.19	0.21	−8.08	0.27	16.76	18.61	−0.2 Y	−12.3 Y
HD 238224	BD+58 1441	HIP	65327	GJ 509.1	M0 V	13 23 23.29	57 54 21.99	−6.6	5.0	39.84	1.44	118.50	1.60	−19.50	1.70	13.98	1.20	3.71	2.38	−6.21	4.27	15.74	18.76	0.1 Y	−12.1 Y
		HIP	66077	GJ 516A	M2.5 -	13 32 44.59	16 48 39.05	−1.8	0.0	72.66	40.60	252.95	40.90	−221.83	23.30	20.82	12.48	−1.47	2.69	−7.03	3.10	22.02	23.53	−2.4 N	−8.8 N
HD 125451	18 Boo	HIP	69989	GJ 3841	F5 IV	14 19 16.28	13 0 15.47	−3.0	1.5	38.33	0.81	106.10	0.70	−32.70	0.70	10.14	0.69	5.35	0.17	−8.13	1.37	14.05	13.14	4.7 N	−2.4 Y
HD 128311	BD+10 2710	HIP	71395	GJ 3860	K0 -	14 36 0.56	9 44 47.46	−9.6	0.4	60.35	0.99	204.50	1.10	−250.10	1.10	16.87	0.43	−4.49	0.13	−20.77	0.41	27.13	24.84	−5.7 N	−2.3 N
HD 129798	DL Dra	HIP	71876		F2 V	14 42 3.25	61 15 42.87	−6.8	1.0	23.47	0.57	76.40	1.30	−33.20	1.50	15.73	0.50	3.08	0.68	−8.51	0.81	18.15	19.78	−0.3 Y	−10.4 Y
HD 131156A	ksi BooA			GJ 566A	G8 V	14 51 23.10	19 6 2.00	3.0	0.9	149.26	0.76	152.81	0.64	−71.28	0.70	5.75	0.40	2.14	0.17	0.07	0.79	6.14	5.28	1.2 N	0.8 Y
	CE Boo	HIP	72944	GJ 569A	dM2 -	14 54 29.00	16 6 3.69	−7.2	0.5	101.91	1.67	277.70	1.90	−132.70	1.90	8.17	0.32	2.91	0.14	−13.48	0.45	16.03	14.05	3.1 N	−1.4 Y
HD 134083	o Boo	HIP	73996	GJ 578	F5 V	15 7 18.07	24 52 9.11	−7.3	2.0	50.70	0.76	184.81	0.90	−163.51	0.53	17.70	0.89	−1.17	0.61	−16.46	1.73	24.20	23.30	−1.4 Y	−3.6 Y
HD 139194	BD+36 2621	HIP	76330		K0 V	15 35 30.16	36 12 34.64	−14.0	0.3	33.37	0.88	118.80	1.10	−92.50	1.30	14.47	0.55	−3.18	0.24	−20.84	0.37	25.57	21.79	0.6 Y	−4.2 N
HD 141003B	beta SerB				dK3 -	15 46 11.26	15 25 18.57	1.4	0.3	21.31	0.86	68.54	1.48	−41.31	0.68	13.63	0.57	4.06	0.30	−10.80	0.57	17.86	17.56	3.2 N	1.3 Y
HD 147513	SAO 207622	HIP	80337	GJ 620.1A	G5 V	16 24 1.29	−39 11 34.73	13.0	0.1	77.69	0.86	72.30	0.70	3.30	0.70	13.61	0.10	−1.13	0.07	−1.37	0.07	13.73	5.54	1.7 N	3.7 N
		HIP	80459	GJ 625	M1.5 -	16 25 24.63	54 18 14.79	−12.8	0.5	151.93	1.11	434.40	2.60	−174.00	2.60	8.11	0.12	−2.22	0.37	−17.50	0.35	19.42	14.14	5.4 N	−4.0 N
HD 150706	BD+80 519	HIP	80902	GJ 632	G3 V	16 31 17.58	79 47 23.18	−16.8	0.3	36.73	0.56	95.10	0.80	−89.20	0.80	19.34	0.27	−4.32	0.28	−13.15	0.20	23.78	19.80	−2.2 N	−10.7 N
HD 152863	56 Her	HIP	82780		G5 III	16 55 2.16	25 43 50.45	1.1	0.9	7.14	0.67	19.30	1.00	−19.10	1.00	13.30	1.45	1.37	0.77	−12.14	1.44	18.06	18.15	1.6 Y	2.6 Y
HD 155674A	BD+54 1861	HIP	83988	GJ 659A	K0 -	17 10 10.51	54 29 39.78	3.0	0.1	47.14	1.88	82.50	1.40	−111.68	1.50	12.50	0.52	5.32	0.17	−4.39	0.29	14.28	14.28	−0.5 Y	3.0 Y
HD 155674B	BD+54 1862	HIP	83996	GJ 659B	K8 -	17 10 12.36	54 29 24.48	2.5	0.1	47.86	3.11	86.90	1.40	−106.10	1.50	11.78	0.78	5.22	0.25	−4.97	0.45	13.81	13.90	0.2 Y	3.0 Y
HD 165185	SAO 209710	HIP	88694	GJ 702.1	G5 V	18 6 23.72	−36 1 11.25	15.2	0.2	57.58	0.77	106.80	1.20	7.40	1.20	14.42	0.20	3.73	0.14	−9.33	0.17	17.58	17.10	2.9 N	14.9 Y
HD 167389	SAO 47313	HIP	89282		F8: -	18 13 7.23	41 28 31.31	−3.0	2.6	29.91	0.59	51.40	0.80	−128.10	0.80	17.20	0.94	−3.75	2.21	−13.33	1.11	22.08	21.85	−1.9 Y	−1.6 Y
HD 171746	HR 6981	HIP	91159		G2 V	18 35 53.24	16 58 31.84	8.4	0.0	29.23	1.54	49.90	1.70	−67.20	1.60	11.90	0.41	3.23	0.26	−10.14	0.73	15.96	15.17	2.5 N	7.2 Y
HD 173950	BD+38 3292	HIP	92122		G5 V	18 46 34.63	38 21 3.30	8.2	0.8	27.01	0.93	16.20	1.60	−84.10	1.60	15.65	0.62	4.62	0.73	−5.19	0.46	17.12	15.02	−2.6 N	2.5 Y
HD 184960	HR 7451	HIP	96258	GJ 4116	F7 V	19 34 19.79	51 14 11.84	−0.1	0.2	39.08	0.47	32.10	1.00	−187.50	1.10	19.13	0.28	1.07	0.20	−12.86	0.21	23.08	23.06	−0.7 Y	−0.1 Y
HD 194943	rho Cap	HIP	101027	GJ 791.1A	F3 V	20 28 51.62	−17 48 49.41	18.4	2.0	33.04	0.86	−2.70	4.40	−16.50	4.20	15.16	1.62	5.03	0.98	−9.44	1.14	18.55	6.77	−0.5 Y	6.3 N
HD 199951	gam Mic	HIP	103738		G6 III	21 1 17.46	−32 15 27.94	17.6	0.9	14.59	0.79	−3.30	0.70	2.00	0.70	13.75	0.69	3.47	0.27	−10.50	0.62	17.65	1.75	1.2 N	1.7 N
	BD−05 5480	HIP	104383		M1 -	21 8 45.47	−4 25 36.95	6.6	0.5	37.91	2.28	−75.36	3.46	−33.09	1.37	12.10	0.72	0.61	0.40	1.67	0.59	12.23	10.67	8.3 N	8.8 Y
HD 205435	rho Cyg	HIP	106481		G5 III	21 33 58.85	45 35 30.61	6.9	0.9	26.20	0.51	−25.20	0.80	−95.00	0.80	14.92	0.36	6.31	0.90	−10.07	0.27	19.07	17.83	0.9 Y	1.6 Y
HD 211575	BD−00 4333	HIP	110091		F3 V	22 18 4.27	0 14 15.56	14.8	0.0	24.11	0.92	−40.50	0.90	−54.90	0.90	16.53	0.55	2.80	0.31	−10.85	0.15	19.97	18.86	1.6 Y	13.4 Y
	EV Lac	HIP	112460	GJ 873	M3.5 -	22 46 49.73	44 20 2.40	0.5	2.0	198.07	2.05	−705.60	1.50	−460.30	1.30	19.73	0.42	3.79	1.92	−1.79	0.45	20.17	17.27	10.4 N	0.7 Y
HD 217813	MT Peg	HIP	113829	GJ 2153	G1 V	23 3 4.98	20 55 6.88	−2.5	1.3	41.19	0.87	−116.70	0.90	−27.50	0.90	13.22	0.31	0.58	1.06	4.64	0.76	14.02	10.32	9.9 N	−3.7 Y

Table 5. IC 2391 supercluster.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 6288A	26 CetA	HIP	4979		F1 V	1 3 49.03	1 22 0.64	5.6	2.0	17.66	0.72	122.50	0.60	−40.70	0.60	−23.61	1.10	−24.52	1.33	−8.55	1.76	35.10	36.28	−2.9 Y	11.1 Y
HD 8941	BD+16 154	HIP	6869		− -	1 28 24.36	17 4 45.32	8.5	2.0	19.99	0.79	117.54	0.78	−34.32	0.48	−23.42	1.28	−17.56	1.34	−7.66	1.42	30.26	30.67	2.0 Y	10.1 Y
HD 13357	BD+13 343	HIP	10175		G5 IV	2 10 52.08	13 40 59.79	25.7	0.5	20.41	1.75	111.71	1.81	−73.24	1.46	−28.27	1.19	−19.36	2.52	−21.19	0.53	40.29	35.26	−5.3 N	17.6 N
HD 14802	kap For	HIP	11072	GJ 97	G2 V	2 22 32.55	−23 48 58.77	18.4	2.0	45.60	0.82	197.34	0.77	−4.39	0.51	−19.33	0.68	−16.81	0.44	−10.17	1.87	27.56	26.64	−1.7 Y	17.1 Y
HD 16699	1ES 0237-53.1A	HIP	12326		− -	2 38 44.29	−52 57 3.06	16.1	1.1	16.31	1.47	81.30	2.20	48.60	2.10	−25.54	2.49	−16.77	1.13	−9.15	1.08	31.89	33.44	1.0 Y	19.0 Y
HD 17190	BD+25 449	HIP	12926	GJ 112	K2 IV	2 46 15.21	25 38 59.66	14.2	1.0	38.95	1.13	238.70	1.00	−148.50	1.00	−25.82	0.89	−25.23	1.00	−8.31	0.52	37.04	40.03	1.8 Y	20.9 N
HD 17382	BD+26 465	HIP	13081	GJ 113	K1 V	2 48 9.15	27 4 7.11	8.9	0.3	44.71	1.15	274.50	1.20	−122.60	1.20	−22.83	0.49	−23.91	0.75	−1.56	0.20	33.10	36.35	6.6 N	18.7 N
HD 18803	51 Ari	HIP	14150	GJ 120.2	G8 V	3 2 26.03	26 36 33.27	10.0	1.0	47.25	0.89	232.80	1.00	−167.90	1.00	−19.16	0.84	−22.96	0.63	−5.92	0.48	30.48	34.59	1.4 Y	19.2 N
HD 19994	94 Cet	HIP	14954	GJ 128	F8 V	3 12 46.44	−1 11 45.98	18.3	0.9	44.69	0.75	194.10	0.70	−69.90	0.70	−19.85	0.63	−19.55	0.34	−6.13	0.68	28.53	33.78	−0.7 Y	25.7 N
HD 20115	BD+00 542	HIP	15058		F8 -	3 14 2.91	0 44 21.27	23.8	2.0	16.27	2.33	74.73	2.71	−13.92	2.13	−26.36	2.10	−17.42	2.72	−7.66	2.09	32.51	33.49	3.7 N	25.4 Y
HD 30652	1 Ori	HIP	22449	GJ 178	F6 V	4 49 50.41	6 57 40.60	24.6	0.9	124.60	0.95	462.90	0.50	11.80	0.50	−26.07	0.81	−14.80	0.18	4.11	0.37	30.26	25.00	14.3 N	22.8 Y
	V1005 Ori	HIP	23200	GJ 182	M1 Ve	4 59 34.83	1 47 0.68	32.4	1.0	37.50	2.56	38.10	1.50	−94.40	1.60	−23.65	0.95	−20.86	0.95	−14.86	0.48	34.86	37.81	−4.1 N	35.8 Y
HD 35112	BD+02 934	HIP	25119		G5 V	5 22 37.50	2 36 11.35	35.5	0.4	50.24	1.52	69.70	1.30	−152.10	1.30	−25.87	0.40	−26.14	0.49	−12.53	0.19	38.85	55.81	0.3 Y	53.5 N
HD 42499	ADS 4775AB	HIP	29241		G5 V	6 9 56.15	−25 37 32.65	27.6	2.0	19.82	1.32	−28.30	1.40	38.80	1.30	−24.05	1.31	−12.92	1.59	−12.19	0.78	29.90	45.70	−2.9 Y	44.3 N
HD 53143	SAO 249700	HIP	33690	GJ 260	K1 V	6 59 59.66	−61 20 10.24	21.3	2.0	54.33	0.54	−161.18	0.54	264.54	0.61	−25.51	0.28	−17.59	1.85	−14.97	0.77	34.41	34.59	−4.1 N	22.0 Y
	BD+01 2063	HIP	40774		G5 V	8 19 19.05	1 20 19.90	27.6	0.6	42.89	1.32	−163.20	1.10	−53.10	1.00	−26.30	0.49	−19.12	0.39	−8.04	0.61	33.49	29.63	1.1 Y	22.8 Y
	BD+23 1978	HIP	42253		K5 V	8 36 55.78	23 14 49.13	20.1	0.3	24.04	2.97	−108.70	1.70	−106.70	1.70	−24.42	1.14	−23.93	2.24	−11.70	2.83	36.14	36.60	−4.1 N	21.3 Y
HD 81817	HR 3751	HIP	47193		K3 IIIa	9 37 5.29	81 19 34.98	−5.1	2.0	3.03	0.54	−15.90	0.30	−16.10	0.30	−25.39	5.19	−24.36	4.03	−6.43	1.35	35.77	35.05	−6.8 N	−4.7 Y
HD 89388	V337 Car	HIP	50371		K3 IIa	10 17 4.98	−61 19 56.31	8.2	0.9	4.43	0.49	−24.20	0.90	5.60	0.90	−21.93	2.94	−13.92	1.15	−9.95	1.55	27.82	28.63	−0.7 Y	10.7 Y
	BD+33 1976	HIP	50660		K0 V	10 20 45.93	32 23 54.34	2.7	0.6	21.06	1.39	−153.20	1.10	−56.70	1.10	−26.51	1.73	−19.54	1.31	−16.59	1.37	36.88	37.45	1.5 Y	7.3 Y
HD 91901	BD−13 3170	HIP	51931		K2 V	10 36 30.79	−13 50 35.82	18.9	0.3	31.63	1.16	−163.60	1.20	22.20	1.10	−24.84	0.86	−18.71	0.30	1.47	0.45	31.13	25.35	6.9 N	8.8 N
HD 93070	w Car	HIP	52468		K4 III	10 43 32.29	−60 33 59.82	9.3	2.0	3.06	0.50	−10.00	1.30	14.30	1.40	−20.00	4.42	−16.54	2.40	11.99	3.10	28.59	19.53	19.7 N	6.3 Y
HD 101906	BD+24 2386	HIP	57198		G2 V	11 43 47.04	24 0 37.19	4.5	0.7	4.23	0.93	−22.30	1.00	−7.60	0.90	−19.05	4.36	−18.63	4.37	−2.73	1.77	26.78	26.27	−3.2 N	1.7 Y
HD 105631	BD+41 2276	HIP	59280	GJ 3706	K0 V	12 9 37.26	40 15 7.40	−3.1	2.0	41.07	0.98	−314.02	0.57	−51.34	0.76	−28.26	0.86	−22.43	0.61	−7.55	1.93	36.86	37.47	−1.9 Y	−7.7 Y
HD 108574	BD+45 2038	HIP	60831		G5 V	12 28 4.45	44 47 39.50	−1.5	0.5	25.51	2.07	−180.20	1.00	−6.70	1.10	−27.90	2.32	−18.17	1.49	−4.08	0.53	33.54	34.79	0.0 Y	−9.3 N
HD 108575	BD+45 2038B	HIP	60832		K V	12 28 4.80	44 47 30.50	−1.3	0.5	23.61	3.71	−178.20	0.90	3.50	1.10	−30.80	4.91	−17.65	2.77	−4.69	0.73	35.81	37.09	2.1 Y	−10.0 N
	BD+21 2462	HIP	62686		K5 -	12 50 41.86	20 32 5.27	−9.3	5.0	27.58	3.39	−125.00	0.90	−33.30	0.90	−15.52	1.91	−15.52	2.14	−9.96	4.97	24.10	23.21	−3.2 N	−7.4 Y
HD 111813	BD+26 2397	HIP	62758		K1 V	12 51 38.41	25 30 31.78	−4.8	0.6	26.54	1.45	−141.90	1.30	−37.80	1.20	−17.67	1.05	−19.34	1.16	−4.97	0.60	26.66	27.36	−4.5 N	−9.0 Y
HD 118100	EQ Vir	HIP	66252	GJ 517	K5 Ve	13 34 43.20	−8 20 31.30	−22.7	2.0	50.54	0.99	−288.70	1.60	−87.40	1.60	−28.22	1.01	−13.53	0.90	−18.35	1.60	36.28	30.84	0.3 Y	−12.3 N
HD 120352	BD−00 2743	HIP	67412		K0 V	13 48 58.19	−1 35 34.64	−13.5	0.4	25.08	1.32	−136.40	0.80	−45.20	0.80	−21.58	0.87	−18.89	1.23	−9.86	0.37	30.33	30.93	−1.5 Y	−14.9 Y
HD 121979	BD+67 812	HIP	68076		K0 V	13 56 17.76	66 56 41.04	−15.5	0.5	22.52	0.73	−140.90	1.00	56.80	1.10	−25.28	1.01	−22.13	0.56	−11.59	0.41	35.54	34.83	−1.8 Y	−13.9 Y
HD 125161B				GJ 9474B	K1 -	14 16 13.00	51 22 30.00	−18.7	2.0	33.54	0.56	−147.80	6.10	84.10	4.80	−22.20	0.87	−15.49	1.19	−13.95	1.79	30.45	28.18	3.0 N	−15.0 Y
HD 135363	REJ1507+76	HIP	74045		G5 V	15 7 56.26	76 12 2.64	−17.7	0.5	33.97	0.69	−131.87	0.62	169.32	0.79	−23.00	0.62	−20.54	0.40	−16.10	0.34	34.79	32.33	2.8 Y	−12.5 Y
HD 140913	BD+28 2469	HIP	77152		G0 V	15 45 7.45	28 28 11.72	−14.5	2.0	20.85	1.04	−88.30	1.40	37.20	1.20	−21.77	1.23	−14.42	1.03	1.67	1.73	26.17	39.96	0.1 Y	−33.5 N
HD 142072	BD−01 3109	HIP	77749		G5 V	15 52 33.75	−1 54 22.81	−24.6	0.5	24.07	0.99	−114.80	0.90	8.70	0.90	−29.50	0.60	−15.78	0.63	0.09	0.74	33.46	36.18	11.8 N	−30.6 Y
HD 155875	HR 6400	HIP	84827	GJ 665	G0.5 IV	17 20 12.68	−70 2 43.31	−5.0	0.9	25.78	0.82	−47.20	1.40	−196.40	1.20	−28.16	1.05	−23.16	1.01	−8.66	0.50	37.47	37.22	4.1 N	−4.8 Y
HD 157750	SAO 208819	HIP	85360		G2 V	17 26 34.86	−32 58 10.80	−18.6	2.0	22.67	1.48	−29.10	1.40	−118.50	1.30	−20.65	2.00	−22.05	1.63	−9.18	0.68	31.57	35.43	2.7 Y	−24.7 N
HD 167605	BD+69 968	HIP	89005		K2 V	18 9 55.50	69 40 49.79	−8.2	2.0	32.30	0.72	−26.60	1.20	192.70	1.20	−26.23	0.74	−13.94	1.74	−0.32	0.98	29.71	32.92	6.8 N	−17.8 N
HD 168746	BD−11 4606	HIP	90004		G5 -	18 21 49.78	−11 55 21.64	−25.6	0.0	23.19	0.96	−21.90	1.00	−66.20	1.00	−19.60	0.21	−21.59	0.60	−2.87	0.25	29.30	26.29	−8.6 N	−23.7 Y
HD 175531		HIP	93096		G9 V:	18 57 56.68	−44 58 6.81	−13.5	2.0	15.51	2.18	26.80	1.20	−80.10	1.40	−20.80	2.20	−17.69	2.83	−10.16	2.23	29.13	29.96	−0.5 Y	−15.2 Y
HD 191869A	SAO 246498	HIP	99803		− -	20 14 56.17	−56 58 35.26	−16.0	2.0	15.32	2.20	38.70	1.70	−87.10	1.70	−27.53	2.71	−19.17	3.50	−0.61	1.84	33.55	29.68	−6.5 N	−7.3 N
HD 191869B					− -	20 14 56.17	−56 58 35.26	−18.0	2.0	15.32	2.20	34.40	2.20	−99.40	2.10	−29.61	2.75	−22.44	4.02	1.68	1.73	37.19	32.00	−9.9 N	−7.9 N
	BD+33 3936	HIP	101262	GJ 791.3	K5 -	20 31 32.07	33 46 33.12	−27.1	1.0	38.18	1.17	141.90	1.60	13.40	1.50	−18.97	0.50	−23.51	0.96	−11.62	0.48	32.37	25.28	−4.5 N	−18.6 N
HD 201651	BD+69 1148	HIP	104225		K0 -	21 6 56.39	69 40 28.54	−13.7	2.0	30.45	0.72	109.10	1.10	65.00	1.20	−14.89	0.71	−16.19	1.87	−9.74	0.56	24.06	21.75	−1.5 Y	−9.2 Y
HD 203030	BD+25 4507	HIP	105232		G8 V	21 18 58.22	26 13 49.95	−17.3	0.4	24.48	1.05	131.30	1.40	8.90	1.30	−23.41	0.92	−15.89	0.38	−12.19	0.84	30.81	32.78	−0.6 Y	−20.6 Y
HD 209779	BD−06 5908	HIP	109110		G0 V	22 6 5.33	−5 21 29.02	−9.6	0.5	28.16	1.01	160.40	0.90	−59.30	0.90	−20.93	0.68	−17.73	0.55	−12.99	0.82	30.35	31.36	−2.1 Y	−12.6 Y
HD 210507	SAO 247351	HIP	109612		K3 -	22 12 16.94	−54 58 40.71	−10.5	2.0	20.39	1.56	111.45	1.37	−65.02	1.02	−27.16	2.03	−16.35	1.61	−2.21	1.75	31.78	29.99	−1.8 Y	−1.6 N
	GT Peg	HIP	112909	GJ 875.1	M3 -	22 51 53.54	31 45 15.14	−1.8	0.5	70.30	2.71	522.60	2.50	−52.50	2.40	−28.01	1.11	−12.65	0.63	−17.69	0.76	35.46	37.33	−1.5 Y	−11.9 N
HD 217352	BD+04 4935	HIP	113556		K0 -	22 59 59.39	5 9 34.49	−16.5	0.7	5.11	1.00	39.10	0.90	−6.90	1.00	−30.06	5.73	−26.21	3.20	−6.19	3.80	40.36	37.80	1.0 Y	−8.6 N
HD 218340	SAO 255410	HIP	114236		G3 -	23 8 12.37	−63 37 41.37	4.0	2.0	17.61	1.08	103.80	1.30	−62.70	1.30	−20.67	1.74	−25.05	1.72	−5.19	1.55	32.89	31.51	−9.3 N	3.6 Y
HD 220091	SAO 108560	HIP	115288		F0 IV	23 20 57.62	17 15 9.54	−19.0	5.0	15.11	0.90	82.90	1.10	28.30	1.00	−25.96	1.75	−18.78	3.81	9.46	3.26	33.41	24.47	13.2 N	−4.4 N
	BD+00 5017	HIP	116384	GJ 900	K7 -	23 35 0.28	1 36 19.53	−10.2	1.0	51.80	1.74	342.60	1.20	33.70	1.20	−29.18	1.03	−15.64	0.68	0.79	0.88	33.12	30.03	9.7 N	−2.0 N
	BD−13 6464	HIP	117410	GJ 907.1	K8 -	23 48 25.69	−12 59 14.91	−8.2	2.0	36.96	2.28	242.60	2.10	17.60	2.10	−29.10	1.87	−13.89	1.05	0.73	1.93	32.25	29.97	8.8 N	−1.4 N

Table 6. Castor moving group.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos \delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)		V_{Total} (km/s)	V_T (km/s)	PV (km/s)	ρ_c (km/s)
HD 7661	BD−12 233	HIP	5938		K0 V	1 16 24.20	−12 5 49.21	8.2	0.6	37.71	1.14	134.80	1.10	−5.70	1.10	−15.17	0.48	−9.14	0.39	−6.42	0.58	18.84	21.51	3.4 N	13.7 Y
HD 12786	BD−16 365	HIP	9716	GJ 3133	K0 V	2 4 59.33	−15 40 41.15	11.1	0.5	39.16	1.11	22.80	1.20	−44.00	1.20	−2.67	0.24	−6.06	0.25	−10.74	0.47	12.62	5.89	−4.8 N	4.6 N
HD 13507	BD+39 496	HIP	10321		G0 V	2 12 55.00	40 40 6.10	5.0	0.6	38.12	0.89	56.90	1.30	−99.20	1.30	−8.21	0.46	−7.10	0.48	−10.46	0.36	15.07	15.06	−2.2 N	5.4 Y
HD 13531	BD+39 498	HIP	10339		G0 V	2 13 13.34	40 30 27.32	6.2	0.6	39.10	0.91	57.60	1.00	−96.40	1.00	−9.00	0.45	−6.04	0.46	−10.31	0.33	14.96	14.47	−1.9 N	5.3 Y
	AG Tri	HIP	11437		K8 -	2 27 29.26	30 58 24.62	6.7	1.2	23.66	2.04	84.00	2.20	−71.80	2.30	−14.37	1.27	−15.93	1.93	−8.65	0.94	23.13	25.24	4.2 N	12.8 N
HD 37216	BD+52 982	HIP	26653		G5 V	5 39 52.35	52 53 50.96	10.1	0.4	35.91	1.12	−10.00	1.30	−141.40	1.40	−16.78	0.45	−10.08	0.52	−8.32	0.40	21.27	19.36	−3.1 N	5.9 Y
		HIP	29067	GJ 226.2	K8 V	6 7 55.25	67 58 36.57	1.6	5.0	40.12	1.78	−48.80	1.80	−113.80	1.90	−10.15	3.90	−5.93	2.63	−8.86	1.86	14.72	14.61	0.9 Y	0.6 Y
HD 41842	SAO 171235	HIP	28921		K1 V	6 6 16.62	−27 54 21.00	12.4	0.4	31.38	1.16	−16.40	1.50	34.40	1.40	−11.28	0.35	−5.85	0.37	−5.05	0.26	13.67	12.00	3.8 N	11.2 Y
HD 47787	SAO 172095	HIP	31821		K1 V	6 39 11.60	−26 34 19.63	19.1	0.6	20.56	2.07	−38.00	2.60	24.60	2.40	−16.80	0.88	−9.24	0.88	−10.30	0.86	21.76	20.98	3.9 N	18.6 Y
HD 51825	SAO 197402	HIP	33451	GJ 255A	F8 IV-V	6 57 17.59	−35 30 25.74	10.1	5.0	23.15	0.56	−40.38	0.50	19.58	0.53	−9.75	1.99	−4.73	4.42	−8.30	1.25	13.65	16.46	0.7 Y	13.7 Y
	BL Lyn	HIP	36627	GJ 277B	M3.5 -	7 31 57.33	36 13 47.41	0.4	1.0	87.15	4.85	−251.90	3.30	−257.10	3.10	−6.74	1.00	−9.57	0.62	−15.70	1.05	19.58	21.20	0.4 Y	8.1 N
	DX Cnc			GJ 1111	M6.5 V	8 29 48.00	26 46 42.00	9.0	0.5	275.80	3.00	−1141.00	5.00	−602.00	5.00	−17.14	0.42	−9.78	0.17	−13.53	0.34	23.93	23.36	2.2 Y	7.7 Y
HD 77825	BD−15 2685	HIP	44526		K2 V	9 4 20.69	−15 54 51.27	3.9	0.4	35.63	1.03	−108.90	1.20	−28.20	1.10	−8.95	0.32	−4.98	0.35	−11.59	0.44	15.47	16.99	−0.5 Y	8.1 Y
HD 82434	psi Vel	HIP	46651	GJ 351A	F3 IV	9 30 41.97	−40 28 0.27	8.8	2.0	53.89	0.70	−147.14	0.58	48.65	0.78	−12.84	0.21	−8.81	1.98	−4.57	0.29	16.23	14.12	4.9 N	6.1 Y
HD 94765	BD+08 2434	HIP	53486	GJ 3633	K0 V	10 56 30.80	7 23 18.50	5.4	0.4	56.98	1.03	−256.80	1.30	−77.30	1.30	−16.67	0.35	−14.19	0.32	−6.91	0.41	22.96	22.39	0.5 Y	2.0 Y
		HIP	53767	GJ 408	M2.5 -	11 0 4.26	22 49 58.68	3.2	0.5	150.95	1.59	−427.00	1.50	−280.80	1.50	−9.27	0.20	−12.97	0.20	−3.70	0.46	16.37	15.55	−4.8 N	2.8 Y
HD 103720	BD−01 2594	HIP	58237		K3 V	11 56 41.18	−2 46 44.23	−8.1	0.3	22.18	1.41	−64.10	1.10	−42.80	1.10	−8.11	0.59	−8.26	0.88	−14.25	0.57	18.36	16.65	−3.9 N	−4.6 Y
HD 119124	BD+51 1859	HIP	66704	GJ 521.2A	F7.7 V	13 40 23.23	50 31 9.90	−10.0	2.0	39.64	0.71	−124.80	1.00	58.90	1.10	−14.85	0.39	−8.51	0.84	−8.92	1.81	19.30	22.01	0.3 Y	−14.6 Y
	BD+24 2700	HIP	69410		K0 V	14 12 41.56	23 48 51.36	−12.2	0.4	30.62	1.16	−41.90	1.00	−15.30	1.00	−6.46	0.25	−7.73	0.32	−9.75	0.39	14.02	11.00	−2.5 N	−8.9 Y
HD 130819	8 Lib	HIP	72603	GJ 563.4	F3 V	14 50 41.18	−15 59 50.05	−23.0	5.0	42.26	1.04	−135.93	0.94	−59.47	0.62	−24.33	3.71	−8.67	1.39	−11.78	3.09	28.39	21.35	7.3 N	−15.2 N
		HIP	85523	GJ 674	M2.5 -	17 28 39.95	−46 53 42.69	−10.5	1.3	220.43	1.63	573.70	1.40	−878.10	1.30	−14.96	1.24	−4.95	0.38	−19.25	0.22	24.88	22.91	8.4 N	−9.3 Y
HD 161284	BD+65 1203	HIP	86456		K0 V	17 39 55.69	65 0 5.91	−7.3	0.5	37.83	0.71	−21.60	1.00	109.20	1.10	−13.20	0.30	−8.25	0.43	−2.32	0.29	15.74	16.56	6.8 N	−11.2 Y
HD 230017	V1436 Aql	HIP	92836	GJ 734	M0: -	18 54 54.00	18 58 60.00	−17.0	10.0	52.00	11.00	19.08	2.91	118.06	2.13	−19.06	6.57	−6.63	7.74	0.83	1.53	20.20	1.80	10.9 N	−1.5 N
HD 181321		HIP	95149	GJ 755	G5 V	19 21 29.76	−34 59 0.37	−10.2	1.3	47.95	1.28	87.60	1.20	−86.40	1.30	−13.12	1.22	−6.00	0.25	−6.62	0.57	15.87	13.38	0.9 Y	−5.6 Y
HD 186922	BD+76 750	HIP	96656	GJ 765.2	K0 -	19 39 6.36	76 25 19.27	−8.7	2.0	33.28	0.69	151.00	0.90	139.20	1.00	−23.52	0.81	−10.22	1.74	−16.55	0.86	30.52	33.12	0.2 Y	−15.5 N
HD 191285	BD−14 5652	HIP	99322	GJ 781.2	K3/4 V	20 9 36.47	−14 17 12.85	−12.3	5.0	31.49	1.58	79.50	1.40	−90.60	1.40	−12.05	4.03	−15.25	2.25	−10.13	2.18	21.92	19.99	−5.4 N	−10.0 Y
		HIP	108467	GJ 842.2	M0.5 -	21 58 24.51	75 35 20.63	−11.0	2.0	47.95	1.08	231.30	2.10	24.90	2.20	−15.03	0.89	−13.89	1.78	−15.21	0.66	25.50	24.59	−0.2 Y	−8.7 Y
	2RE J2201+2	HIP	108706	GJ 4247	M4 -	22 1 13.12	28 18 24.86	−3.0	1.0	111.57	3.19	372.11	2.76	36.48	3.38	−13.70	0.43	−4.48	0.93	−7.33	0.46	16.17	15.94	4.7 N	−4.9 Y
HD 211472	BD+53 2831	HIP	109926	GJ 4268A	K1 V	22 15 54.14	54 40 22.40	−8.6	0.5	46.62	0.67	212.30	1.10	69.70	1.20	−19.64	0.36	−13.00	0.49	−5.94	0.17	24.29	22.08	9.0 N	−7.2 Y
HD 216803	TW PsA	HIP	113283	GJ 879	K4 V	22 56 24.06	−31 33 56.02	6.0	5.0	130.94	0.92	334.00	1.50	−157.10	1.30	−6.08	2.06	−8.23	0.59	−10.49	4.52	14.65	13.42	−2.5 N	2.8 Y
HD 217107	BD−03 5539	HIP	113421		G8 IV	22 58 15.54	−2 23 43.38	−13.6	0.5	50.71	0.75	−5.80	0.70	−15.10	0.80	−1.58	0.12	−8.58	0.29	10.54	0.40	13.68	0.07	−1.5 N	0.0 N
	HK Aqr	HIP	114252	GJ 890	M2 V	23 8 19.55	−15 24 35.81	3.4	1.0	45.75	2.60	107.30	3.10	−19.40	3.10	−7.84	0.71	−4.12	0.63	−7.80	0.96	11.80	11.41	1.2 N	2.0 Y
HD 218738	BD+47 4058	HIP	114379	GJ 4315	G5 Ve	23 9 57.36	47 57 29.99	−6.4	0.6	39.56	7.67	149.70	1.50	−4.20	1.60	−13.58	2.99	−11.94	1.28	−6.02	1.44	19.06	17.54	4.8 N	−2.9 Y
HD 220476	BD−08 6103	HIP	115527		G5 V	23 24 6.34	−7 33 2.74	4.5	0.5	33.10	0.91	146.20	0.90	−5.00	0.90	−17.26	0.55	−6.12	0.36	−11.13	0.49	21.43	20.62	5.6 N	4.1 Y

Table 7. Other young disc stars.

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)	
HD 224983	BD+10 5022	HIP	184		K0 V	0 2 21.54	11 0 22.45	−16.2	0.5	29.75	1.21	−5.00	0.90	−43.50	0.90	6.41	0.26	−14.17	0.39	8.32	0.44
HD 691	V344 And	HIP	919		K0 V	0 11 22.44	30 26 58.47	−2.8	0.5	29.35	0.95	210.60	1.10	35.20	1.10	−30.75	1.08	−15.84	0.62	0.96	0.31
		HIP	1399		− -	0 17 30.45	−59 57 4.19	−4.5	2.0	22.54	2.33	113.20	2.30	−40.25	2.14	−19.30	2.07	−16.11	2.13	5.15	1.70
HD 1326	GX And	HIP	1475	GJ 15A	M1.5 V	0 18 22.89	44 1 22.62	12.0	1.0	280.26	1.05	2887.50	1.10	408.90	1.10	−49.23	0.46	−11.90	0.85	−3.54	0.32
	SAO 11215	HIP	2232		G0: -	0 28 17.10	63 44 5.93	9.6	1.5	9.04	3.06	62.60	2.10	2.60	2.00	−33.18	9.73	−8.29	5.82	−1.42	1.34
HD 4128	bet Cet	HIP	3419	GJ 31	K0 III	0 43 35.37	−17 59 11.78	12.8	0.9	34.04	0.82	232.79	0.83	32.71	0.54	−30.63	0.75	−11.46	0.38	−12.89	0.89
HD 4614	eta Cas	HIP	3821	GJ 34A	G3 V	0 49 6.29	57 48 54.67	10.0	0.1	167.99	0.62	1087.07	0.44	−559.73	0.44	−30.32	0.11	−9.26	0.11	−16.89	0.06
	LP 467-16			GJ 3076	M5 -	1 11 25.00	15 26 24.00	4.0	0.1	118.00	21.00	176.00	1.00	−123.00	1.00	−5.62	0.69	−5.10	1.28	−5.72	0.50
	Wolf 44			GJ 47	M2 -	1 19 6.00	61 22 15.00	8.9	0.5	78.00	8.00	389.00	1.00	−835.00	1.00	−27.95	2.35	−10.83	1.89	−48.11	4.91
	YZ Cet	HIP	5643	GJ 54.1	M4.5 -	1 12 30.64	−16 59 56.28	28.2	5.0	269.03	7.57	1209.92	5.21	646.88	3.91	−28.43	1.11	−0.27	0.52	−23.90	4.91
HD 9770	BB Scl	HIP	7372	GJ 60	K3 V	1 35 1.01	−29 54 37.20	31.5	1.0	42.29	1.47	73.40	1.40	33.20	1.40	−12.08	0.42	−6.35	0.27	−29.79	0.99
HD 14374	BD−01 316	HIP	10818		G0 V	2 19 16.04	0 46 47.41	24.6	0.3	25.51	1.11	61.30	0.80	−31.90	0.90	−18.11	0.32	−8.33	0.57	−19.30	0.28
				GJ 102	M4 -	2 33 37.00	24 55 24.00	−0.3	10.0	129.00	12.00	37.00	1.00	−689.00	1.00	4.20	7.36	−16.98	4.44	−18.36	5.63
HD 18445	SAO 168180	HIP	13769	GJ 120.1C	K2 V	2 57 13.19	−24 58 30.39	49.6	0.5	38.87	1.50	15.00	1.20	−32.60	1.30	−17.30	0.27	−17.69	0.29	−43.21	0.45
	1E 0307.5+1424					3 10 14.20	14 35 47.00	18.6	1.0	9.00	5.00	−5.40	2.60	−24.50	1.70	−9.15	3.19	−3.83	4.28	−20.55	5.39
	BD+60 637	HIP	14864	GJ 3206	K7 -	3 11 56.85	61 31 12.93	−8.3	10.0	27.13	3.41	6.20	3.10	104.30	3.30	12.43	7.58	0.32	6.63	15.73	2.26
HD 20630	kap Cet	HIP	15457	GJ 137	G5 Vvar	3 19 21.70	3 22 12.71	19.9	0.9	109.18	0.78	268.87	0.77	93.53	0.68	−22.41	0.66	−4.27	0.06	−5.32	0.62
HD 26756	SAO 93829	HIP	19781		G5 V	4 14 25.65	14 37 30.12	38.5	0.4	21.91	1.27	108.40	1.20	−20.80	1.20	−41.52	0.55	−17.87	1.13	−3.01	0.86
HD 26900	BD+36 860	HIP	19930		K2 V	4 16 32.66	36 30 6.60	20.8	0.3	39.08	1.16	−22.80	1.20	−225.60	1.30	−21.15	0.29	−11.52	0.58	−24.68	0.67
HD 27466	BD−04 799	HIP	20218		G5 V	4 19 57.08	−4 26 19.54	18.0	0.5	27.88	0.96	−58.60	1.20	−37.00	1.20	−7.33	0.48	−2.78	0.28	−20.03	0.49
HD 28100	73 Tau	HIP	20732		G7 IIIa	4 26 36.37	14 42 49.63	31.8	0.9	7.17	0.81	−6.70	0.80	−30.30	0.80	−22.75	1.15	−13.27	1.64	−27.18	1.85
		HIP	22627	GJ 179	M3.5 -	4 52 5.73	6 28 35.54	−9.1	0.5	82.52	3.99	146.09	4.15	−310.14	2.49	13.35	0.53	−17.07	0.97	1.05	0.32
	LHS 1723			GJ 3323	M4 -	5 1 57.00	−6 56 48.00	42.0	0.1	163.00	26.00	−546.00	1.00	−546.00	1.00	−21.46	1.90	−18.41	0.29	−38.33	3.02
	V371 Ori	HIP	26081	GJ 207.1	M2.5 -	5 33 44.79	1 56 43.43	22.1	1.0	59.45	3.88	−241.34	4.71	−156.61	1.69	−13.13	1.00	−7.01	0.44	−28.16	1.60
HD 245409	BD+11 878	HIP	26335	GJ 208	K7-M0 V	5 36 30.99	11 19 40.31	22.7	5.0	87.90	1.29	−0.70	1.20	−57.50	1.20	−20.68	4.76	−7.88	1.19	−5.92	0.96
HD 38529	BD+01 1126	HIP	27253		G4 V	5 46 34.91	1 10 5.50	28.9	2.0	23.57	0.92	−79.30	0.90	−140.60	1.00	−12.46	1.85	−24.63	0.98	−33.58	1.18
HD 40647	BD+69 361	HIP	28902		G5 V	6 6 5.70	69 28 34.08	−14.5	0.5	31.30	0.97	−135.10	1.00	−56.20	1.10	3.90	0.46	−3.83	0.34	−25.91	0.69
HD 42807	V1357 Ori	HIP	29525	GJ 230	G2 V	6 13 12.50	10 37 37.71	6.0	1.0	55.20	0.96	77.30	1.30	−297.30	1.20	3.09	0.96	−26.03	0.58	−6.68	0.21
HD 43162	SAO 171428	HIP	29568	GJ 3389	G5 V	6 13 45.30	−23 51 42.96	22.0	1.0	59.90	0.75	−45.40	1.10	113.20	1.20	−20.67	0.61	−10.10	0.74	−6.94	0.33
	G 104-37			GJ 232	M4.5	6 24 40.00	23 26 18.00	−12.0	0.1	112.00	7.00	390.00	1.00	−300.00	1.00	15.54	0.25	−16.64	1.16	7.72	0.55
HD 258857	BD+05 1273	HIP	31069		K2 V	6 31 11.08	5 52 36.97	29.4	0.4	32.09	2.06	−154.30	1.60	−61.90	1.60	−26.89	0.38	−10.09	0.36	−25.35	1.67
HD 46375	BD+05 1295	HIP	31246		K1 IV	6 33 12.63	5 27 46.53	1.0	5.0	29.93	1.07	114.24	0.92	−96.79	0.73	8.50	4.51	−20.27	2.31	8.96	0.39
HD 46524	SAO 171921	HIP	31187		K0 V	6 32 37.08	−29 34 56.73	19.0	0.4	23.52	1.03	−68.00	1.50	67.70	1.40	−23.57	0.73	−4.18	0.64	−12.72	0.48
HD 265866		HIP	33226	GJ 251	M3 -	6 54 48.96	33 16 5.40	22.0	0.1	181.31	1.87	−727.60	2.50	−401.80	2.40	−26.72	0.11	−3.69	0.08	−15.11	0.23
	LHS 1885			GJ 3417	M4.5 -	6 57 58.00	62 19 12.00	16.0	0.1	129.00	20.00	332.00	1.00	−395.00	1.00	−17.16	0.64	−10.18	2.58	14.75	1.26
HD 54359	BD−09 1858	HIP	34423	GJ 267	K0 V	7 8 9.31	−9 58 7.34	25.3	0.4	34.84	1.37	−200.60	1.20	29.30	1.20	−29.17	0.54	−5.60	0.57	−22.77	0.91
	G 089-032			GJ 3454	M0 -	7 36 25.00	7 4 36.00	24.0	0.1	162.00	26.00	265.00	1.00	351.00	1.00	−20.68	0.15	−5.97	1.01	16.68	1.80
	BD−21 2221	HIP	39222		G0 III	8 1 21.48	−22 19 58.58	38.3	0.3	6.58	1.24	−10.50	1.30	21.10	1.30	−33.38	3.08	−24.94	1.76	4.37	1.08
HD 69247	BD−10 2443	HIP	40465		K5 V	8 15 45.12	−10 26 54.40	−3.7	0.4	23.07	1.59	−59.60	1.30	−46.30	1.30	1.40	0.33	−1.05	0.45	−15.85	1.08
HD 69433	BD+65 626	HIP	40918		G0 V	8 21 3.78	65 26 33.76	−1.6	0.6	27.33	0.98	12.20	1.40	22.00	1.40	3.92	0.49	2.47	0.36	0.40	0.40
HD 74576	SAO 199544	HIP	42808	GJ 320	K1 V	8 43 18.03	−38 52 56.54	14.3	2.0	89.78	0.56	−301.01	0.42	340.76	0.44	−26.19	0.40	−9.72	1.96	−0.84	0.08
HD 75289	HR 3497	HIP	43177		G0 -	8 47 40.39	−41 44 12.46	9.3	0.0	34.55	0.56	−19.50	0.80	−227.70	0.80	21.10	0.41	−12.69	0.06	−21.53	0.40
	BD+12 1944	HIP	43948	GJ 330	M1 -	8 57 4.69	11 38 49.02	−12.0	0.5	60.99	3.45	−29.20	1.40	−324.20	1.40	15.55	0.55	−15.72	1.27	−17.17	0.67
HD 81040	BD+20 2314	HIP	46076		G0 V	9 23 47.09	20 21 52.04	48.9	0.6	30.71	1.24	−151.90	0.70	36.30	0.70	−49.77	0.87	−13.31	0.31	17.83	0.77
	BD−12 2918A			GJ 352A	M3 -	9 31 22.00	−13 29 15.60	7.3	1.3	94.95	4.31	722.93	5.26	53.52	5.99	22.15	1.24	−2.42	1.09	29.44	1.35
HD 82558	LQ Hya	HIP	46816	GJ 355	K0 V	9 32 25.57	−11 11 4.67	7.6	0.2	54.52	0.99	−247.50	1.10	35.50	1.10	−20.36	0.35	−5.45	0.17	−9.28	0.28
HD 82943	BD−11 2670	HIP	47007		G0	9 34 50.74	−12 7 46.35	8.1	0.0	36.42	0.84	2.20	1.20	−172.70	1.30	10.16	0.36	−19.78	0.33	−8.74	0.35
	BD+28 1779	HIP	47176		G5 V	9 36 50.00	27 58 22.41	−11.5	0.4	24.23	1.35	−170.20	1.30	−95.80	1.20	−13.41	1.25	−17.88	1.19	−33.06	1.46
HD 83588	BD+58 1208	HIP	47547		K2 V	9 41 36.06	57 29 46.58	22.1	0.4	31.02	1.27	−87.50	1.40	−43.90	1.40	−25.21	0.56	−1.47	0.42	8.64	0.45
		HIP	47513	GJ 361	M1.5 -	9 41 10.36	13 12 34.43	11.5	0.5	88.06	1.98	−658.70	2.00	−144.70	1.90	−30.04	0.64	−15.25	0.35	−17.76	0.70
	BD+63 869	HIP	48714	GJ 373	M0 -	9 56 8.67	62 47 18.45	13.3	0.5	95.40	1.20	−303.80	1.70	−584.00	1.80	−23.86	0.38	−23.81	0.42	10.52	0.36
HD 87000	BD+68 587	HIP	49387		G5 V	10 4 57.05	67 25 21.82	2.0	0.3	24.69	1.22	−16.50	1.30	−79.40	1.30	−6.10	0.39	−13.08	0.76	6.18	0.39
HD 87884	BD+12 2147			GJ 9316	K2 V	10 8 12.83	11 59 48.40	6.3	4.0	44.20	8.80	−233.30	4.20	1.00	3.90	−22.85	4.39	−6.94	2.09	−9.77	4.19
HD 87883	BD+34 2089	HIP	49699		K0 V	10 8 43.14	34 14 32.12	9.1	0.4	55.37	0.94	−65.10	1.20	−60.70	1.30	−8.60	0.26	−7.03	0.16	4.19	0.34
HD 88230	BD+50 1725	HIP	49908	GJ 380	K7 -	10 11 22.14	49 27 15.24	−26.0	0.1	205.23	0.81	−1359.80	1.00	−505.70	1.00	−9.16	0.12	−20.62	0.07	−35.92	0.10
	BD−03 2870	HIP	49986	GJ 382	M1.5 -	10 12 17.67	−3 44 44.42	7.7	0.5	127.99	1.53	−150.70	1.40	−245.20	1.50	−2.31	0.17	−12.66	0.36	−2.69	0.35
	AD Leo			GJ 388	M4.5 Ve	10 19 36.27	19 52 11.90	12.4	1.0	213.00	4.00	−500.80	2.00	−46.00	1.90	−14.50	0.50	−7.36	0.35	3.81	0.82
HD 93811	BD+52 1514	HIP	53008	GJ 3627	G5 V	10 50 40.31	51 47 58.82	−0.6	0.5	34.77	2.67	−195.40	1.30	7.40	1.30	−22.48	1.78	−6.57	0.54	−12.75	1.03
	DEN 1048-39				M9 V	10 48 14.68	39 56 6.10	−10.1	0.5	244.00	99.00	−1147.00	8.00	−992.00	9.00	−9.61	5.86	−24.73	9.98	−16.31	3.05
HD 95128	47 UMa	HIP	53721	GJ 407	G1 V	10 59 27.97	40 25 48.94	11.3	0.5	71.04	0.66	−317.20	0.70	56.60	0.70	−24.16	0.29	−2.39	0.06	0.65	0.46
HD 95743	BD−08 3068	HIP	54002		K3 V	11 2 50.12	−9 19 49.29	−10.0	0.3	32.73	1.23	−201.70	1.30	−61.30	1.40	−19.83	0.83	−7.71	0.63	−24.07	0.71
HD 96612	BD+39 2424	HIP	54426		K0 V	11 8 14.01	38 25 35.90	−36.1	0.5	43.91	1.03	−214.30	1.50	41.30	1.60	−6.40	0.61	−3.57	0.22	−42.48	0.52
HD 97584	BD+74 456	HIP	54952	GJ 420A	K5 -	11 15 11.90	73 28 30.73	8.4	1.0	68.13	1.18	−401.70	0.90	110.40	0.90	−28.62	0.66	0.98	0.56	−9.52	0.72
	REJ1147+12				K5 Ve	11 46 60.00	12 0 0.00	−12.1	1.0	22.00	5.00	−9.80	2.20	−10.20	1.90	0.35	0.50	1.54	0.81	−12.38	0.98
HD 102696	BD+01 2617	HIP	57658		− -	11 49 28.07	0 36 32.91	21.7	0.4	23.29	1.65	−133.55	1.59	−13.66	1.05	−22.23	1.79	−24.54	1.12	11.01	0.71
HD 108984	BD+21 2426	HIP	61099		K0 V	12 31 18.29	20 13 4.15	−7.9	0.3	39.62	0.95	−17.00	1.00	−169.00	0.90	8.68	0.26	−17.06	0.47	−10.43	0.30
HD 110514	BD+03 2681	HIP	62016		K0 V	12 42 38.93	2 34 36.06	6.1	0.4	32.71	1.09	−10.50	1.00	−48.70	1.10	3.37	0.21	−8.45	0.33	2.56	0.39
HD 110833	BD+52 1650	HIP	62145	GJ 483	K3 V	12 44 14.54	51 45 33.54	9.9	0.4	66.40	0.78	−389.80	1.10	−176.90	1.20	−19.99	0.26	−21.23	0.35	13.48	0.37
HD 111631	BD+00 2989	HIP	62687	GJ 488	K7 -	12 50 43.57	0 46 5.26	3.7	0.5	92.75	0.96	−29.80	1.00	−396.90	1.00	9.40	0.17	−17.33	0.26	−6.23	0.45
HD 113720	BD−18 3539	HIP	63905		G5 V	13 5 46.22	−18 49 33.06	−13.3	0.5	21.98	1.13	−107.60	1.30	−11.20	1.30	−24.06	1.04	−7.00	0.88	−9.67	0.41
	LP 378-541			GJ 2097	M1.5 -	13 7 0.00	20 48 60.00	−12.0	0.1	156.00	23.00	−69.00	1.00	−38.00	1.00	−2.42	0.16	−1.46	0.32	−11.91	0.10
HD 114613	SAO 204227	HIP	64408	GJ 501.2	G3.5 -	13 12 3.19	−37 48 10.89	−15.0	0.9	48.83	0.79	−381.30	0.90	46.50	0.90	−39.22	0.71	−8.76	0.73	0.73	0.41
	G 165-08			GJ 3789	M4 -	13 31 46.00	29 16 34.00	8.0	0.1	126.00	22.00	−245.00	1.00	−114.00	1.00	−3.75	0.80	−7.98	1.56	9.47	0.29
HD 119332	BD+57 1459	HIP	66781		K0 V	13 41 13.40	56 43 37.83	−8.1	0.5	42.12	0.76	−16.60	1.10	71.10	1.20	−4.99	0.20	−0.07	0.28	−10.40	0.44
HD 119607	BD−16 3736	HIP	67055		K1 V	13 44 29.66	−16 51 15.94	−10.9	0.4	22.11	1.28	−137.20	1.40	31.70	1.40	−30.70	1.49	−8.83	0.89	3.08	0.72
HD 122968	BD+38 2510	HIP	68734		K0 V	14 4 11.36	37 22 9.46	−22.6	0.4	20.34	1.14	14.50	1.70	−43.70	1.70	7.13	0.70	−11.86	0.52	−20.84	0.40
		HIP	70975	GJ 553.1	M3.5 -	14 31 1.16	−12 17 45.96	−40.6	10.0	89.76	3.47	−405.22	3.47	−400.16	4.12	−33.79	6.69	−17.74	2.99	−33.11	6.92

Table 7. – *continued*

Name					SpT	α (2000) (h m s)	δ (2000) (° ′ ″)	V_r (km/s)		π (mas)		$\mu_\alpha \cos\delta$ (mas/yr)		μ_δ (mas/yr)		U (km/s)		V (km/s)		W (km/s)	
HD 128620	alf CenA	HIP	71683	GJ 559A	G2 V	14 39 36.50	−60 50 2.31	−21.6	0.5	742.24	1.40	−3679.26	1.51	483.03	1.24	−29.49	0.36	0.48	0.35	12.59	0.03
	alf CenB	HIP	71681	GJ 559B	K0 V	14 39 35.08	−60 50 13.76	−18.1	0.5	742.22	1.40	−3601.08	26.10	953.36	19.70	−25.80	0.38	−0.79	0.37	15.09	0.16
HD 129920	BD+52 1825	HIP	71989		G2 V	14 43 22.33	51 55 5.19	−13.0	9.0	20.79	0.70	−60.70	1.20	120.10	1.30	−29.99	1.06	−1.71	4.84	−14.43	7.60
HD 130215	BD+28 2365	HIP	72200		K2 V	14 46 3.07	27 30 44.45	−20.8	0.4	37.93	1.10	18.40	1.00	−40.20	1.00	−1.77	0.25	−7.77	0.19	−19.99	0.37
HD 130307	BD+03 2938	HIP	72312	GJ 3867	G8 V	14 47 16.10	2 42 11.62	13.0	0.5	50.84	1.04	−288.00	1.20	−78.00	1.20	−4.97	0.41	−23.67	0.50	18.92	0.44
		HIP	72896	GJ 568A	M3.5 -	14 53 51.47	23 33 20.90	−35.6	0.5	97.83	5.99	−715.80	3.80	106.40	3.70	−38.31	1.55	−28.26	1.25	−15.19	1.11
	HO Lib	HIP	74995	GJ 581	M3 -	15 19 26.82	−7 43 20.21	−9.5	0.5	159.52	2.27	−1224.55	3.07	−99.51	1.72	−25.06	0.47	−25.63	0.41	11.76	0.43
HD 139837	BD+28 2454	HIP	76674		G5 V	15 39 25.20	27 37 34.73	−21.5	0.5	20.65	1.30	−52.50	1.10	53.30	1.10	−24.38	1.01	−9.27	0.32	−8.78	0.69
HD 144087	BD−11 4057	HIP	78738	GJ 9541A	G8 V	16 4 25.92	−11 26 57.79	−32.0	0.5	35.25	2.56	−61.20	1.40	−22.80	1.40	−29.99	0.47	−7.65	0.60	−11.96	0.41
HD 144088	BD−11 4058	HIP	78739	GJ 9541B	K2 V	16 4 26.72	−11 26 59.56	−32.5	0.5	30.89	6.86	−57.20	1.90	−19.40	1.70	−30.66	0.70	−7.94	1.80	−11.79	0.99
HD 145675	14 Her	HIP	79248		K0 V	16 10 24.31	43 49 3.54	−13.9	0.0	55.11	0.59	132.60	1.00	−297.00	1.10	23.74	0.32	−12.34	0.09	−16.14	0.10
HD 149661	V2133 Oph	HIP	81300	GJ 631	K2 V	16 36 21.45	−2 19 28.50	−13.1	0.1	102.27	0.85	455.00	0.70	−308.10	0.70	0.72	0.13	−0.45	0.05	−28.63	0.20
HD 150748	BD+49 2535	HIP	81633		K V	16 40 35.09	49 9 59.23	−12.2	0.4	31.34	0.77	2.00	1.30	−16.30	1.40	0.19	0.24	−9.44	0.32	−8.11	0.30
HD 153557	BD+47 2415	HIP	83020	GJ 649.1A	K0 V	16 57 53.17	47 22 0.03	−6.7	0.6	55.71	1.21	−153.90	1.20	267.80	1.40	−25.69	0.56	−6.26	0.46	6.03	0.45
	BD+05 3409	HIP	85665	GJ 678.1A	M0 -	17 30 22.73	5 32 54.66	−3.2	1.3	100.17	1.30	28.40	1.60	−250.20	1.50	4.15	1.07	−9.07	0.60	−7.27	0.47
	BD+21 3245	HIP	87579	GJ 697	K0 -	17 53 29.94	21 19 31.05	−13.4	0.2	40.22	1.04	−71.40	1.00	57.00	0.90	−13.47	0.21	−9.66	0.16	4.56	0.29
	G 155-1			GJ 1224	M4.5 -	18 7 33.00	−15 57 48.00	−34.0	0.1	133.00	4.00	−619.00	1.00	346.00	1.00	−33.94	0.10	−8.23	0.04	23.98	0.76
HD 168442	BD−01 3474	HIP	89825	GJ 710	K5 -	18 19 50.84	−1 56 18.98	−23.3	2.5	51.81	1.43	0.60	1.10	1.40	1.10	−20.60	2.20	−10.60	1.15	−2.48	0.29
	FK Ser	HIP	89874		K5-7 V	18 20 22.74	−10 11 13.56	−9.0	1.0	9.42	6.17	9.44	8.36	−32.59	5.93	−3.76	3.49	−14.44	8.37	−12.24	9.20
	BD+45 2743	HIP	91128	GJ 720A	M0 -	18 35 18.39	45 44 38.62	−31.2	0.5	64.61	1.03	448.80	1.60	364.20	1.60	−39.38	0.53	−10.02	0.54	−33.48	0.42
				GJ 720B	M3.5 -	18 35 27.33	45 45 39.50	−29.8	10.0	66.90	2.00	452.00	1.00	343.00	1.00	−36.57	2.64	−9.54	8.96	−32.81	3.76
HD 173739	BD+59 1915A	HIP	91768	GJ 725A	M3 -	18 42 46.69	59 37 49.42	−1.0	0.1	277.00	5.00	−1315.00	3.10	1815.00	3.58	−25.48	0.48	−12.42	0.23	25.86	0.49
HD 173740	BD+59 1915B	HIP	91772	GJ 725B	M3.5 -	18 42 46.90	59 37 36.65	1.0	0.1	284.48	5.01	−1393.34	11.50	1845.53	12.00	−25.00	0.52	−10.86	0.26	27.26	0.55
	V1216 Sgr	HIP	92403	GJ 729	M3.5 -	18 49 49.37	−23 50 10.48	−6.9	2.0	336.48	1.82	644.20	2.90	−192.90	2.70	−8.57	1.93	−0.27	0.39	−7.99	0.36
HD 175897	SAO 245862	HIP	93378		G0 V	19 1 6.84	−58 53 30.25	20.7	4.5	9.44	1.26	7.00	1.30	−42.10	1.30	6.73	4.08	−24.28	2.86	−15.91	2.21
HD 180134	HR 7297	HIP	94858		F7 V	19 18 9.78	−53 23 13.51	−23.5	2.0	21.94	0.75	24.20	1.70	−81.10	1.60	−28.47	1.77	−8.47	0.80	2.12	0.97
	BD+87 183	HIP	91720	GJ 753	K8 -	18 42 13.32	88 18 10.94	−10.4	2.0	23.29	1.29	−92.30	1.10	145.80	1.10	−16.81	1.56	−30.52	2.01	11.29	1.32
		HIP	94997	GJ 4106	M2 -	19 19 49.66	−53 43 14.10	18.0	2.0	16.67	4.34	24.80	4.80	−107.10	4.40	2.12	4.06	−30.25	6.94	−19.53	3.61
HD 183063	BD−12 5409	HIP	95722		G8 V	19 28 12.30	−12 8 41.36	−31.0	0.5	26.29	2.19	0.10	2.10	−9.90	2.10	−26.52	0.48	−14.77	0.43	6.52	0.40
HD 184985	BD−14 5479	HIP	96536	GJ 764.2	F7 V	19 37 34.41	−14 18 6.48	−15.3	1.0	32.36	0.74	−103.80	0.90	−146.20	0.90	−1.09	0.92	−28.98	0.68	9.10	0.34
HD 186803	BD−19 5596	HIP	97358		G6 V	19 47 18.10	−18 44 47.96	−23.7	0.6	32.32	0.90	−67.90	1.20	−111.30	1.20	−12.69	0.58	−25.42	0.57	10.97	0.30
HD 331161	BD+31 3767	HIP	97292	GJ 767A	M1 -	19 46 23.93	32 1 1.39	−4.4	0.5	74.90	2.93	464.87	1.86	−392.51	2.49	5.51	0.38	−4.49	0.46	−38.10	1.50
	BD+31 3767B			GJ 767B	M2 -	19 46 24.20	32 0 57.00	−3.7	0.5	73.80	1.90	464.87	1.86	−392.51	2.49	5.89	0.30	−3.86	0.46	−38.62	1.00
HD 187458	HR 7550	HIP	97477		F5/6 V	19 48 43.81	35 18 41.10	−27.0	5.0	14.99	1.04	73.90	1.10	63.40	1.10	−36.11	2.56	−14.81	4.75	−12.41	0.92
HD 187101	SAO 246298	HIP	97705		G9 V	19 51 23.66	−58 30 35.55	17.5	2.0	14.73	0.92	35.90	1.50	−84.10	1.40	−1.62	1.93	−27.76	1.63	−19.98	1.34
HD 189733	BD+22 3887	HIP	98505	GJ 4130	G5 V	20 0 43.71	22 42 39.07	−2.7	0.5	51.94	0.87	−2.80	0.90	−250.70	0.90	15.46	0.39	−12.58	0.47	−11.56	0.23
HD 190470	BD+25 4085	HIP	98828	GJ 779.1	K3 V	20 4 10.05	25 47 24.83	−7.2	0.4	46.28	0.91	−76.20	1.20	−39.30	1.10	3.74	0.25	−9.57	0.37	4.83	0.15
		HIP	101844		M0 -	20 38 19.43	−55 36 19.74	−26.0	2.0	31.24	2.81	14.43	2.33	−78.78	1.90	−24.09	1.60	−4.95	1.22	14.79	1.24
		HIP	102401	GJ 806	M1.5 -	20 45 4.10	44 29 56.47	−24.3	0.5	80.01	1.57	433.60	2.60	268.60	2.40	−30.78	0.59	−21.05	0.50	−10.64	0.27
HD 198550	BD+28 3900	HIP	102851	GJ 808.2	K5 V	20 50 10.56	29 23 2.91	−9.0	0.1	48.38	1.77	25.70	1.20	−48.30	1.10	−0.80	0.14	−9.87	0.12	−3.41	0.23
		HIP	103441	GJ 813	M2 -	20 57 25.36	22 21 45.86	−31.0	0.5	73.24	3.24	770.70	1.80	−213.00	1.80	−34.27	1.06	−31.76	0.49	−38.16	2.06
HD 200676	SAO 246873	HIP	104256		K1 V	21 7 17.53	−57 1 56.33	22.0	2.0	18.69	2.07	39.70	1.50	−112.90	1.80	2.96	2.03	−33.30	3.22	−16.96	1.38
HD 203136	BD+49 3498	HIP	105208		K0 III	21 18 40.38	50 10 56.78	−15.5	0.3	4.35	0.69	−0.80	1.50	−3.10	1.60	3.58	1.98	−15.36	0.31	−1.88	1.93
		HIP	105885	GJ 828.1	K7 -	21 26 42.45	3 44 13.68	−2.5	1.3	34.92	2.11	−41.50	1.70	−53.50	1.70	6.63	0.84	−6.64	0.99	1.66	0.73
HD 209154	BD−16 5998	HIP	108732		G8 III	22 1 32.86	−15 36 43.28	6.6	0.3	6.43	1.21	36.40	0.90	−5.70	1.00	−16.28	3.85	−4.78	1.74	−22.21	3.37
		HIP	108752	GJ 844	M2 -	22 1 49.05	16 28 2.80	−14.7	0.5	60.94	2.14	403.50	1.70	143.60	1.70	−34.48	1.15	−10.82	0.43	−4.51	0.54
HD 215555	BD−12 6343	HIP	112415		G8 IV	22 46 8.78	−12 9 31.65	−34.8	0.5	7.86	1.24	53.10	1.30	22.30	1.20	−44.00	5.33	−12.21	0.91	18.23	1.89
HD 223154	BD+26 4685	HIP	117294		G5 IV	23 46 58.85	27 11 13.36	16.2	0.2	6.58	1.06	−7.50	1.20	−46.60	1.20	15.44	3.51	0.90	2.23	−34.34	4.41
HD 223460	OU And	HIP	117503		G1 IIIe	23 49 40.96	36 25 31.01	0.7	0.9	7.41	0.70	1.10	1.40	−48.70	1.50	11.02	1.48	−8.92	1.32	−27.76	2.83

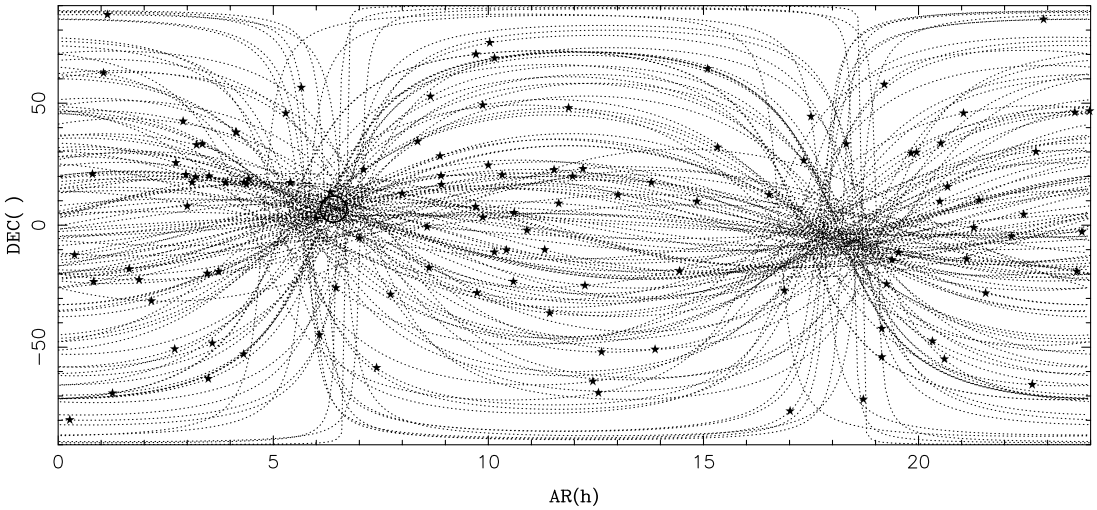

Figure 3. Spacial position (RA, Dec.) for the possible stars members of the Hyades MG. The convergent point of the MG at RA $= 6.4^{\rm h}$, Dec. $= 6\overset{\circ}{.}5$ is marked with a circle. The dotted lines represent great circles defined by the proper motions and position of each star.

parameter he called Peculiar Velocity (PV) that is defined as $V_{\rm tan}$ but takes into account only the proper motion component perpendicular to the C.P. (τ):

$$PV = 4.74\tau\pi^{-1}.$$

The criterion compares this peculiar velocity with another parameter he called total velocity ($V_{\rm T}$) obtained as a real $V_{\rm Total}$ but takes into account only the proper motion component in the direction of the C.P. (υ):

$$V_{\rm T} = 4.74\upsilon\pi^{-1}\sin^{-1}\lambda.$$

The criterion considers a star as a possible member of an MG when its peculiar velocity (PV) is less than about 10 per cent of its total velocity ($V_{\rm T}$):

$$PV < 0.1V_{\rm T}.$$

Taking into account the definition of PV and $V_{\rm T}$, this condition can also be written in terms of components τ and υ as

$$\tau/\upsilon < 0.1\sin^{-1}\lambda.$$

This criterion takes into account the information provided by the proper motion of the star but not the radial velocity.

(2) RADIAL VELOCITY CRITERION

For the moving cluster method we can obtain a predicted radial velocity (called $\rho_{\rm c}$ by Eggen) as:

$$\rho_{\rm c} = V_{\rm T}\cos\lambda.$$

The criterion is based in the comparison of this predicted radial velocity with the observed radial velocity of the star. Eggen considered a star as a possible member of an MG when these two velocities differ by less than 4–8 km s^{-1}, depending on the quality of the observed radial velocity.

We have applied both criteria (PV and $\rho_{\rm c}$) to our candidate stars (for the five MGs), in addition to the information provided by the Galactic velocity components (U, V, W; see previous section), in order to apply more strict requirements for SC membership and to better discern their membership to the different MGs. For the peculiar velocity criterion we have used the 10 per cent of $V_{\rm T}$ for all the MGs except for the Local Association, where we have used 20 per cent of $V_{\rm T}$ to take into account the large dispersion observed in this MG. For the radial velocity criterion we have taken into account the uncertainties of the adopted radial velocity of each star. In Tables 2 to 6 we list the total velocity ($V_{\rm Total}$) and the parameters needed to apply the criteria (PV, $V_{\rm T}$, and $\rho_{\rm c}$). The results of applying the PV and $\rho_{\rm c}$ criteria are indicated in the column beside each parameter with the labels 'Y' (if possible member) and 'N' (if the star does not satisfy that criterion). Errors in $V_{\rm T}$, PV and $\rho_{\rm c}$ are taking into account inside criteria. In the (U, V) and (W, V) diagrams (Fig. 2) we have plotted with filled symbols the stars that satisfied both criteria.

5 DISCUSSION AND CONCLUSIONS

Making use of a great quantity of data from the literature (previous general kinematic studies of moving groups, many works on late-type stars, new results from X-ray surveys, etc.), the accurate astrometric data recently released by the *Hipparcos* and Tycho-2 catalogues, and additional data obtained for our own spectroscopic observations, we were able to identify a considerable population of single late-type stars (for binaries see Paper II) that are members of young (20–600 Myr) stellar kinematic groups. We have used as membership criteria the position of the stars in velocity space (U, V, W), Eggen's kinematic criteria of deviation of the space motion of the star from the convergent point, and comparison between the observed and calculated radial velocities. Additional criteria using age-dating methods for late-type stars (Li I λ6708-Å absorption line, location on the colour–magnitude diagram, and level of chromospheric and coronal activity) will be applied in the more detailed study of each SKG we have undertaken, and will be addressed in forthcoming papers.

In this paper we give the list of possible members of groups (see Tables 2 to 7); for each star we list the stellar parameters we have compiled, as well as the computed galactic space motions and the results of applying the kinematic criteria. These data are also available in tabular format and in searchable catalogue format in the web page http://www.ucm.es/info/Astrof/skg.html that we maintain about stellar kinematic groups.

For our extensive initial sample of single late-type stars we have found a total of 535 stars that can be considered, for their position in the velocity space (U, V, W) as young disc stars. We have classified 120 stars as possible members of the Local Association, 118 of the Hyades supercluster, 84 of the Ursa Major moving group, 53 of the IC 2391 supercluster, 34 of the Castor moving group, and 126 as other young disc stars (classification is not clear but it is inside or near the boundaries that determine the young disc population in the velocity space).

When we take into account the Eggen's kinematic criteria, in the four MGs where the convergent point is available, the number of possible members in each MG is reduced. Eliminating only the stars that do not satisfy one of the two criteria (peculiar velocity and radial velocity), we found 104 possible members of the Local Association, 96 of the Hyades supercluster, 69 of the Ursa Major MG, 43 of the IC 2391 supercluster, and 29 of the Castor MG. Considering only the stars that satisfied the peculiar velocity criterion we found 77 in the Local Association, 67 in the Hyades supercluster, 37 in the Ursa Major MG, 28 in the IC 2391 supercluster, and 10 of the Castor MG. Finally, imposing both criteria the number of possible members is reduced to 45 in the Local Association, 38 in the Hyades supercluster, 28 in the Ursa Major MG, 15 in the IC 2391 supercluster, and eight in the Castor MG.

Analysing these results with the help of the great circles defined by the proper motions (see Fig. 3), we can see that almost all stars which do not satisfied the *PV* criterion move clearly away from the convergent point of the MG, especially those which do not satisfy radial velocity criteria either. In the velocity space (U, V, W) the stars which satisfied both criteria tend to have a lower dispersion with respect to the expected (U, V, W) position of the MG (see Fig. 2), but there are some cases where this is not true. The latter are normally stars with large errors in U, V and W (due to large errors in radial velocity or in parallax).

Our results confirm the membership of several previously established members of SKGs, but in other cases the new calculated Galactic space motions indicate the membership to a different SKG or that the star should be considered only as a young disc star with no clear membership to any SKG (e.g., LQ Hya). In some cases, the new calculations even located the star outside the boundaries of the young disc population in the Boettlinger diagram.

For the late-type stars with planetary companions included in our sample we have found that some stars known to be young [GJ 3021 (Naef et al. 2000), ι Hor (Kürster et al. 2000), τ Boo (Henry et al. 2000), 55 Cnc (Fuhrmann et al. 1998) and HD 108147 (Mayor et al. 2000)] could be possible members of the Hyades supercluster. Some of these have been also identified by Suchkov & Schultz (2001) as stars with planetary systems with ages similar to the Hyades.

The groups of nearby late-type stars with different ages we have identified in this work will be very useful for chromospheric activity studies. High-resolution optical spectroscopic observations of these stars will provide a simultaneous analysis of the different optical chromospheric activity indicators, as well as yielding rotation speed, binarity, variability and kinematics. With all this information it will be possible to study in detail the chromosphere, discriminating between the different structures: plages, prominences, flares and microflares (see Montes et al. 2000b; 2001b,d), and to analyse the flux–flux and rotation–activity relationships and their age evolution.

A further study of the list of stars compiled here, as well as detailed analysis of the origin of these young SKG and their relation with nearby young open clusters, OB associations, T associations and other recently identified associations of young stars, could lead to a better understanding of the star formation history in the solar neighbourhood.

Another important use of the list of late-type stars we give here is that the youngest ones (the possible members of the Local Association) can be taken as search targets for direct imaging detection of substellar companions (brown dwarfs and extrasolar giant planets). These young and nearby cool dwarfs favour the optimization of the dynamical range, and the substellar companions can be detected directly because they are considerably more luminous when undergoing the initial phases of gravitational contraction than at later stages. Until now only five brown dwarfs have been detected directly (and confirmed by both spectroscopy and proper motion) as companions to nearby stars: the T dwarf Gl 229 B (Nakajima et al. 1995), the young L dwarf G 196-3 B (Rebolo et al. 1998), the T dwarf Gl 570 D (Burgasser et al. 2000), the M9 dwarf CoD $-33°$ 7795 B (Neuhäuser et al. 2000b) which is a member of the TW Hya association, and the M8 dwarf HR 7329 B (Guenther et al. 2001) which is a member of the Tucanae association. The B component of the Ursa Major group member Gl 569 seems to be a triple brown dwarf system (Martín et al. 2000; Kenworthy et al. 2001). In addition, Neuhäuser et al. (2000a) have shown that direct imaging detection of extrasolar giant planets is already possible with current technology.

Radial velocity is an important parameter in the determination of the space-velocity components, and in some cases only poor-quality measurements are available in the literature, resulting in large errors in U, V and W. Good-quality spectroscopic observations are needed to confirm the membership of these stars to a SKG. We have already started a programme of high-resolution echelle spectroscopic observations (using 2-m class telescopes) of these candidate stars in order to obtain a better determination of their radial velocity, as well as other stellar parameters. We will use these new data to better establish the membership of these stars (for preliminary results see Montes 2001b and Montes et al. 2001b,d).

However, a considerable number of stars in our initial sample are too faint, and no radial velocities or accurate astrometric parameters are available in the literature. High-resolution spectroscopic observations using 4- or 8-m class telescopes will be needed to obtain the spectroscopic parameters of these stars. Accurate astrometric parameters for a huge number of stars will be available, in the future, with the space-astrometry missions *DIVA* (Double Interferometer for Visual Astrometry) and *FAME* (Full-sky Astrometric Mapping Explorer). The space mission *GAIA* (Global Astrometric Interferometer for Astrophysics) will reach a much larger distance (magnitude limit 20), and will provide both astrometric data and radial velocities.

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