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Erratum: A covariant approach to general field space metric in multi-field inflation

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Abstract. We present a covariant formalism for general multi-field system which enables us to obtain higher order action of cosmological perturbations easily and systematically. The effects of the field space geometry, described by the Riemann curvature tensor of the field space, are naturally incorporated. We explicitly calculate up to the cubic order action which is necessary to estimate non-Gaussianity and present those geometric terms which have not yet been known before.

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(1) In section 4, eq. (4.27) at bottom of page 9 should be corrected to:

$$\left(P_{\langle IJ\rangle}+P_{\langle IK\rangle\langle JL\rangle}\dot{\phi}_0^K\dot{\phi}_0^L\right)D_t\dot{\phi}_0^J+\left(3HP_{\langle IJ\rangle}+P_{\langle IJ\rangle a}f_{a;K}\dot{\phi}_0^K\right)\dot{\phi}_0^J-P_af_{a;I}=0\,. \quad (4.27)$$

(2) Eq. (4.35) at page 11 should be corrected to:

$$\begin{aligned}(g_3)_{IJK}=&-\frac{1}{2}\mathcal{N}_K\left[P_{\langle IJ\rangle}+\left(P_{\langle IJ\rangle\langle LM\rangle}+3P_{\langle IL\rangle\langle JM\rangle}\right)\dot{\phi}_0^L\dot{\phi}_0^M+P_{\langle IL\rangle\langle JM\rangle\langle AB\rangle}\dot{\phi}_0^L\dot{\phi}_0^M\dot{\phi}_0^A\dot{\phi}_0^B\right]\\&+\frac{1}{2}\left(P_{\langle IJ\rangle a}+P_{\langle IL\rangle\langle JM\rangle a}\dot{\phi}_0^L\dot{\phi}_0^M\right)f_{a;K}\,,\end{aligned} \quad (4.35)$$

(3) Eq. (4.37) at page 11 should be corrected to:

$$(g_a)_{IJ}=\mathcal{N}_I\left(P_{\langle JK\rangle}\dot{\phi}_0^K+P_{\langle JK\rangle\langle LM\rangle}\dot{\phi}_0^K\dot{\phi}_0^L\dot{\phi}_0^M\right)-P_{\langle JK\rangle a}f_{a;I}\dot{\phi}_0^K\,, \quad (4.37)$$

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