calculated results may not be affected by the inertial effects apparently. Did the authors check the effects of fluid inertia forces in their analysis?

(2) Although the turbulence coefficients are time averaged values, the coefficients depend strongly on the location, and then they are affected by the preturbed motion of the bearing. Could the authors explain more precisely about this problem?

(3) Did the authors compare the experimental results in Fig. 11 with the theoretical results directly? If they did so, could they show some examples?

Additional References

Hashimoto, H., and Wada, S., 1985, "Turbulent Lubrication of Tilting Pad Thrust Bearings With Thermal and Elastic Deformations," ASME JOURNAL OF TRIBOLOGY, Vol. 107, pp. 82–86.

Harada, M., and Aoki, H., 1988, "Analysis of Thrust Bearings Operating in Turbulent Regime," ASME JOURNAL OF TRIBOLOGY, Vol. 110, pp. 555–560.

Hashimoto, H. 1989, "The Effects of Fluid Inertia Forces on the Static Characteristics of Sector-Shaped, High-Speed Thrust Bearings in Turbulent Flow Regimes," ASME JOURNAL OF TRIBOLOGY, Vol. 111, pp. 406–412.

Authors' Closure

The authors thank Dr. Hashimoto for his comments on this paper and would like to answer his questions. In his first comment, Dr. Hashimoto points out the importance of inertial effects in high surface speed thrust bearings. The authors are aware of this fact and are already working on the inclusion of these effects as well as the effects of elastic and thermo-elastic pad deformations in their comprehensive bearing program.

Dr. Hashimoto's second question concerns the effects of the perturbed motion on the turbulence coefficients. This effect was neglected in the reported work, because only linear dynamic coefficients were calculated. Experimental results at different operating conditions didn't show an influence of this effect (Mittwollen, 1990; Schüler and Hopf, 1988).

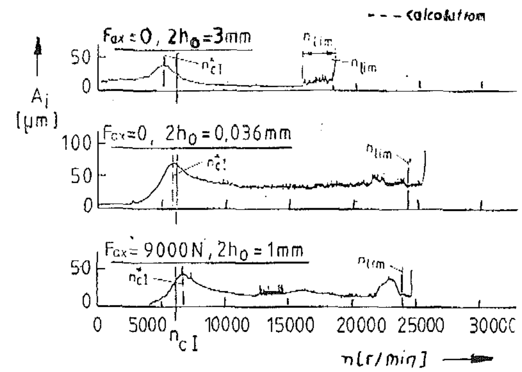

Fig. 12 Measure whirl amplitudes $A_i(n)$ of the rotor disk and the calculated critical speeds n_{cI}^* and the threshold speeds of instability $n_{\lim}$ of the asymmetric rotor VIb

In reply to Dr. Hashimoto's third question, we supplement a direct comparison between experimental and theoretical results in Fig. 12. The agreement of the first critical speed n_{cI}^* and the threshold speeds of instability $n_{\lim}$ is good.

Additional Reference

Schüler, D., and Hopf, G., 1988, "Untersuchungen der dynamischen Eigenschaften großer Turbinenlager," *Konstruktion*, Vol. 40, pp. 143–150.

