

# **The Effect of the Non-Synchronous Rotation on the Surface Stress of Europa: Constraints for the Rotation Period and the Surface Viscosity**

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European visco-elastic deformation due to its non-synchronous rotation is calculated. The solutions for the period of the rotation and the viscosity of the shell are investigated on the basis of this calculation. These solutions satisfy the pre-existing constraints and explain the tidal stress field consistent with the orientations of the lineaments. The solutions range between 1 and 100 My in the period and between  $10^{21}$  and  $10^{23}$  Pa. s in the surface viscosity.