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**Title:** *"Short-period librations due to tides in planetary satellites "*

**Abstract.** The application of the creep tide theory to the rotation of close-in satellites and exoplanets shows a variety of behaviors with two extreme cases: gaseous planets with fast relaxation (low viscosity) and satellites and Earth-like planets with slow relaxation (high viscosity). In the simplest Darwinian regime of gaseous bodies, the rotation tends to a stationary rotation a bit faster than the orbital motion. The excess of angular velocity is $\sim 6ne^2$. In the case of close-in planetary satellites and Earth-like planets, the rotation is damped to attractors with periods nearly commensurable with the orbital period, but the final solutions are not stationary. They are forced oscillations (the so-called physical librations) around one attractor. The use of averaged models in the study of the spin-orbit dynamics of planetary satellites and other stiff bodies is not appropriate because these motions are strongly dominated by a short-periodic oscillation. We discuss the consequences of these librations in the evolution of the systems and apply the new theory to the study of the rotation of some Saturnian satellites whose oscillations were determined from Cassini's observations.

Joint work with H.A. Folonier, Universidade de São Paulo.

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