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Title: *"Tidal evolution of circumbinary systems"*

Abstract. We investigate the secular dynamics of three-body circumbinary systems under the effect of tides. We use the octupolar non-restricted approximation for the orbital interactions, general relativity corrections, the quadrupolar approximation for the spins, and the viscous linear model for tides. We derive the averaged equations of motion in a simplified vectorial formalism, which is suitable to model the long-term evolution of a wide variety of circumbinary systems in very eccentric and inclined orbits. We show that circumbinary planets with initial arbitrary orbital inclination can become coplanar through a secular resonance between the precession of the orbit and the precession of the spin of one of the stars. We also show that circumbinary systems for which the pericenter of the inner orbit is initially in libration present chaotic motion for the spins and for the eccentricity of the outer orbit.

Joint work with Gwenael Boué (IMCCE) and Jacques Laskar (IMCCE).