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Maxime Murray*, 3149 millwood terrace, apt 221, Boca Raton, FL 33431. *Parameterized invariant manifold and applications in the Circular Restricted Four Body Problem*. Preliminary report.

The parameterization method is a well-known framework with proven value to parameterize hyperbolic manifolds attached to periodic solutions of ordinary differential equations. Using a Taylor expansion, one can rewrite the computation of the manifold into a recursive system of linear differential equations describing the coefficients. I will discuss this approach and how to obtain an interval enclosure of the truncated solution to the system. I will then show how validated manifolds are used to compute cycle-to-cycle or cycle-to-collision connections in the case of the circular restricted three-body problem and Hill's four-body problem. (Received January 08, 2021)