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Duokui Yan* (duokuiyan@gmail.com), Beihang University, Haidian District Xueyuan Rd #37, Beijing, Beijing 100191, Peoples Rep of China. *A Simple Existence Proof of the Schubart Periodic Orbit with Arbitrary Masses.*

This paper gives a surprisingly simple existence proof of the Schubart periodic orbit with arbitrary masses, a periodic orbit with singularities in the collinear three-body problem. A “turning point” technique is applied to study the shape of the orbit and the existence follows by a continuity argument on differential equations generated by the regularized Hamiltonian. (Received August 30, 2011)