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Duokui Yan* (duokuiyan@gmail.com), Beihang University, Haidian District, Xueyuan Rd #37, Beijing, 100191, Peoples Rep of China, and **Tiancheng Ouyang** and **Xiaojun Chang**. *Index and Linear Stability of the Criss-Cross Orbit*.

Maslov-type index iteration theory are applied to study the linear stability of the criss-cross orbit in the planar three-body problem. This orbit was first found by Broucke and Hénon, and later rediscovered and named by Moore. The symmetry group of this orbit is shown to be D_4 . Following Hu and Sun's recent work, we show that this orbit is linearly stable. Surprisingly, the variational structure of this orbit guarantees its linear stability. (Received June 01, 2012)