

## **The retrograde periodic orbit and global surfaces of section**

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### **Abstract:**

Hundred years ago Birkhoff proved existence of the retrograde periodic orbit in the restricted three body problem below the first critical value and conjectured that it always bounds a disklike global surface of section. In this talk we review Birkhoff's work, discuss what the methods of modern symplectic geometry tell us about Birkhoff's conjecture and what still remains to be done.