

Abstract Submitted
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Elliptic billiard is a nontrivial integrable system TAO MA, ROSTISLAV SEROTA, University of Cincinnati — We investigate the semiclassical energy spectrum of quantum elliptic billiards. The nearest neighbor spacing distribution, level number variance and spectral rigidity support the notion that the elliptic billiard is a generic integrable system. A classical simulation shows that all periodic orbits, except two, are not isolated. From Fourier analysis of the spectrum, all peaks correspond to periodic orbits. The two isolated periodic orbits have relatively small contribution to the fluctuations of the level density as compared to non-isolated periodic orbits. We argue that elliptic billiard is a nontrivial classically integrable system that enables us to gain new insights into their properties.

Rostislav Serota
University of Cincinnati

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