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Paul Joseph Apisa* (apisa@umich.edu), 530 Church Street, Ann Arbor, MI 48109. *Billiards, dynamics, and the moduli space of Riemann surfaces.*

The Hodge bundle is the space whose points correspond to a Riemann surface equipped with a holomorphic 1-form. This space admits a $GL(2, \mathbb{R})$ action whose dynamics governs the geometry of the moduli space of Riemann surfaces, an object of central importance in geometry, algebra, and physics. I will describe work on classifying $GL(2, \mathbb{R})$ orbit closures in hyperelliptic loci of the Hodge bundle and explain applications to counting problems on right and isosceles triangular billiard tables. (Received January 16, 2022)