

Pseudo-holomorphic curves and applications to geodesic flows

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Abstract: This talk is intended to survey applications of pseudo-holomorphic curves to Reeb flows in dimension three, with an eye towards geometry. For the geometer the interest stems from the fact that geodesic flows are particular examples of Reeb flows. I will discuss characterizations of lens spaces, existence/non-existence of closed geodesics with a given knot type under pinching conditions on the curvature, sharp systolic inequalities, existence of elliptic dynamics (in relation to an old conjecture of Poincaré), and generalizations of Birkhoff's annular global surface of section for positively curved 2-spheres.