Seminar/Talk

Diamond structures in KAM invariant curves of analytic billiard-like maps

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Mathematical billiards in strictly convex domains with smooth boundaries provide tangible examples of twist maps on the cylinder, where the dynamics exhibit almost integrable behavior near the boundary. Building on this idea, Lazutkin demonstrated the existence of a Cantor set of positive measure, which contains zero, and within which the billiard maps have invariant curves associated with certain rotation numbers. These invariant curves evolve smoothly as the rotation number varies, in the Whitney sense. In this talk, I will present a generalization of this result for billiards with analytic boundaries, a joint work with Frank Trujillo and Vadim Kaloshin, motivated by recent advances from Carminati, Marmi, Sauzin, and Sorrentino. This extension shows that the Cantor set of rotation numbers can be continued into the complex plane, with the complex counterpart containing structures known as diamonds. This discovery offers new insights into length spectral rigidity.

Tuesday, January 28, 2025 02:00pm - 03:30pm
Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)

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