

1061-37-106

Jose Ferran Valdez* (ferran@matmor.unam.mx), Inst. de Matematicas UNAM, Campus Morelia, Apartado 61-3 (Xangari), 58089 Morelia, Michoacan, Mexico. *Polygonal billiards and homogeneous foliations.*

In this talk we present and discuss a new framework for the study of polygonal billiards. To each polygonal table we associate a holomorphic homogeneous foliation on the complex affine space of dimension 2. The dynamics of the billiard ball in the table corresponds to the directional (real) flow of the complex vector field defining the foliation. The leaves of the holomorphic foliation provided with their natural flat structure are isomorphic to the flat surfaces obtained from the polygonal billiard via unfolding. One application of this correspondence is the determination of the topological type of flat surfaces arising via unfold from an irrational polygonal table. There is only one possibility: the infinite genus topological surface with only one end. (Received April 09, 2010)