1139-37-457 **Vladimir Dragovic*** (`vladimir.dragovic@utdallas.edu`), 800 West Campbell Road, FO 35, Richardson, TX 75080. *Billiards within ellipsoids and extremal polynomials.*

A comprehensive study of periodic trajectories of the billiards within ellipsoids in d-dimensional space is presented. The novelty of the approach is based on a relationship established between the periodic billiard trajectories and the extremal polynomials on a systems of d intervals on the real line. The case study of trajectories of small periods T, $d \leq T \leq 2d$ is given. The talk is based on a joint work with M. Radnovic. (Received February 18, 2018)