



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Seminar in Geometry and Topology

Room 1 ,Ziskind Building  
on Tuesday, Dec 23, 2014  
at 13:00

**NOTE UNUSUAL PLACE AND TIME**

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Classification of spherical quadrilaterals (part 1)

Abstract:

A spherical quadrilateral (membrane) is a bordered surface homeomorphic to a closed disc, with four distinguished boundary points called corners, equipped with a Riemannian metric of constant curvature 1, except at the corners, and such that the boundary arcs between the corners are geodesic. We discuss the problem of classification of these quadrilaterals and perform the classification up to isometry in the case that at most three angles at the corners are not multiples of  $\pi$ . This is a very old problem, related to the properties of solutions of the Heun's equation (an ordinary differential equation with four regular singular points). The corresponding problem for the spherical triangles, related to the properties of solutions of the hypergeometric equation, has been solved by Klein, with some gaps in Klein's classification filled in by Eremenko in 2004. The general quadrilateral case remains open. This is joint work with V. Tarasov (IUPUI). The first part is by A. Eremenko (Purdue), 13:00-14:00, room 1. The second is by A. Gabrielov (Purdue), 16:00-17:15, room 261.