Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

12:00 pm, Tuesday, October 27, 2015, 345 Altgeld Hall
Ilya Kossovskiy (Univ. of Vienna)
Dynamics and Cauchy-Riemann Geometry

Abstract: From the point of view of Complex Analysis, Cauchy-Riemann (CR) Geometry is a tool for studying holomorphic functions of several variables. From the point of view of Differential Geometry, CR Geometry lies in the framework of Cartan's moving frame method. Finally, CR Geometry is a tool for studying properties of solutions of linear Partial Differential Equations, as suggested by the celebrated work of Hans Lewy, Nirenberg, and Treves. We have recently discovered a new face of CR Geometry which regards CR manifolds as certain Dynamical Systems, and vice versa. Geometric properties of CR manifolds are in one-to-one correspondence with that of the associated dynamical systems. This technique has enabled us recently to solve a number of long-standing problems in CR Geometry. It also has promising applications for Dynamical Systems. In this talk, we will outline this technique, and describe its recent applications to Complex Analysis and Dynamics. In particular, we will discuss here an approach for studying Painleve Differential Equations.

Video