**Irregular isomonodromic deformations: Hamitlonian theory and quantization**

This talk is dedicated to the isomonodromic deformation equations on the Riemann sphere with the punctures of an arbitrary Poincar\'e rank (regular and irregular isomonodromic problems). Such deformations are closely related to the Painlev\'e equations and Garnier systems, as well as to the moduli space of flat connections over the Riemann sphere with boundaries. In this talk, using the confluence procedure I will show what Poisson and symplectic structure arise when we transfer to the irregular case. Moreover, I am going to discuss how the connection depends on irregular deformation parameters and their meaning from the representation theory point of view. I am also going to discuss the quantization of obtained isomonodromic systems and relation to the quasi-classical solutions of the KZ equations written in the terms of the classical isomonodromic tau function