VIRTUAL EAST-WEST SCV SEMINAR

November 3, 2020

Leandro AROSIO
Universita di Roma "Tor Vergata"

Horospheres in strongly pseudoconvex domains

The concept of horosphere with center at a point in the boundary plays an important role in geometric function theory and in holomorphic dynamics, in the framework of bounded strongly convex domains of C^n. The existence of horospheres in such domains was proved by Abate in 1988 using Lempert's theory of complex geodesics, and thus it is difficult to generalize such proof to bounded strongly pseudoconvex domains. In this talk I will show how to obtain this generalization following a different route. We highlight a condition (the approaching geodesic property) on a Gromov hyperbolic space, which implies that the horofunction compactification is topologically equivalent to the Gromov compactification. Using a rescaling procedure we obtain that strongly pseudoconvex domains satisfy the approaching geodesic property. The existence of horospheres then follows from the fact that the Gromov compactification is topologically equivalent to the euclidean compactification as proved by Balogh-Bonk. This is a joint work with Matteo Fiacchi, Sébastien Gontard, and Lorenzo Guerini.