

Title: Unitarization of the horocyclic Radon transform on homogeneous trees

Abstract: Let  $X$  be a  $q$ -homogeneous tree and  $\Xi$  be the set of horocycles. The classical definition of horocyclic Radon transform  $\mathcal{R}$  maps  $C_C(X)$  into the space  $L^2(\Xi)^b$  of the square integrable functions on  $\Xi$  whose average on the boundary is even. We exhibit the existence of a pseudo-differential operator  $\Lambda$  such that  $\Lambda\mathcal{R}$  extends to a unitary operator  $\mathcal{Q}$  from  $L^2(X)$  onto  $L^2(\Xi)^b$ . Then  $\mathcal{Q}$  intertwines the quasi-regular representations of  $\text{Aut}(X)$  on  $L^2(X)$  and  $L^2(\Xi)^b$ .