1056-31-1798 **Lucio M.G Prado*** (`lprado@bmcc.cuny`), Department of Mathematics, BMCC - The City University of New York, 199 Chambers Street, New York, NY 10007. ***p-Capacity*** $\mathbb{Z}^n$ ***and Zeta function****.*

The aim of this talk is to present some concepts and techniques from p-potential theory on Riemannian manifolds adapted to *finite* and *infinite graphs*. Namely, we will define p-capacity based on similar concept in continuous settings, which will be used to classify the graphs as p-hyperbolic and p-parabolic. The notions of p-hyperbolicity and p-parabolicity are useful in handling the existence or nonexistence of solutions in the class of p-Dirichlet functions to the Poisson equation for p-Laplacian. In previous talk, we showed how to get explicit formulas for the computation of the p-capacity of the lattices $\mathbb{Z}^n$ and the homogenous trees T_d.

In this talk, we will focus specifically on p-hyperbolic lattices $\mathbb{Z}^n$ and highlight the computation of their p-capacity in terms of the Zeta function.