

SEMILINEAR PDES ON HYPERBOLIC SPACE AND RELATED PROBLEMS

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ABSTRACT. In this talk, semilinear elliptic partial differential equations(PDEs) on hyperbolic space and related problems will be presented. Several geometric problems lead to the study of the equation:

$$-\Delta_{\mathbb{B}^N} u - \lambda u = |u|^{p-2} u, \quad u \in H^1(\mathbb{B}^N),$$

where λ is a real parameter and $H^1(\mathbb{B}^N)$ denotes the Sobolev space on the conformal ball model of the hyperbolic space. Some existence, non existence and qualitative properties of solutions of above equation will be pointed out.