Hypersurfaces in the light cone and Minkowski-type problems

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Abstract

Given an immersed hypersurface f in the hyperbolic space H^n or in the de Sitter space S_1^n with unit normal N, one can construct the associated map $f + N$ in L^{n+1}, that takes values in the positive light cone. The purpose of this talk is to show how the geometric properties of this lightcone map can be used to investigate natural geometric problems for hypersurfaces in the hyperbolic and de Sitter spaces. We shall show that some Minkowski-type problems for hypersurfaces in terms of their principal curvatures admit a simple formulation when viewed in the light cone setting, and that this interpretation is very useful in order to solve them.

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[1]The talk will be presented by the third author (Pablo Mira)