On the conjectured extension of Hilbert's theorem

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Abstract

In 1901 Hilbert proved that *there is no isometric immersion from the complete hyperbolic plane* $\mathbb{H}^2$ *into three-dimensional Euclidean space* $\mathbb{R}^3$. It is a long-standing problem if the complete hyperbolic space $\mathbb{H}^n$ can be isometrically immersed in the Euclidean space $\mathbb{R}^{2n-1}$, when $n \geq 3$. In fact, the non-existence of such an immersion has been frequently conjectured by several mathematicians, among them Yau (1982), Moore (2002) and Gromov (2017).

The aim of our talk is to show that: *if such an immersion exists then the second fundamental form of that immersion has exponential growth.*

This is a recent work in collaboration with Marcos Dajczer (IMPA) and Theodoros Vlachos (University of Ioannina).