Title: The asymptotic Plateau's problem for minimal submanifolds and CMC hypersurfaces in a Hadamard manifold

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Abstract:

Let M^n be a Cartan-Hadamard manifold (namely a connected, simply connected, complete Riemannian manifold with nonpositive sectional curvature) of dimension $n \geq 3$.

The asymptotic Plateau's problem for $k-$dimensional minimal submanifold in M, $2 \leq k \leq n-1$, consists in finding, for a given $(k-1)-$dimensional, closed, topological submanifold Γ of the asymptotic boundary $\partial_\infty M$ of M, a complete minimal submanifold S^k of M such that $\partial_\infty S = \Gamma$.

In codimension 1, given $H \in \mathbb{R}$ we may consider the asymptotic Plateau's problem for the constant mean curvature (CMC) H hypersurface in M, namely, find a complete CMC H hypersurface S of M such that $\partial_\infty S = \Gamma$.

In this talk I will make a short survey, explaining the main notions and techniques of the theories used to deal with the these problems, and comment on the recent work I have been doing with my colleagues Jean-baptiste Casteras, Ilkka Holopainen, Miriam Telichevesky and Friedrich Tomi on the above problems.