

GEOMETRY SEMINAR

Hypersurfaces of constant higher order mean curvature in $M \times \mathbb{R}$ **João Paulo dos Santos**

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Abstract. We consider hypersurfaces of products $M \times \mathbb{R}$ with constant r -th mean curvature — to be called Hr-hypersurfaces — where M is an arbitrary Riemannian manifold. We develop a general method for constructing them, and employ it to produce many examples for a variety of manifolds M , including all simply connected space forms and the Hadamard manifolds known as Damek-Ricci spaces. We establish a Jellett-Liebmann-type theorem by showing that a compact, connected and strictly convex Hr-hypersurface of $\mathbb{H}^n \times \mathbb{R}$ or $\mathbb{S}^n \times \mathbb{R}$ ($n \geq 3$) is a rotational embedded sphere. Other uniqueness results for complete Hr-hypersurfaces of these ambient spaces are obtained. This is a joint work with Ronaldo de Lima (UFRN) and Fernando Manfio (ICMC-USP).