

SEMINÁRIO DE GEOMETRIA DIFERENCIAL

Complete submanifolds with relative nullity in space forms.**João Paulo dos Santos**

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Abstract. We use techniques based on the splitting tensor to explicitly integrate the Codazzi equation along the relative nullity distribution and express the second fundamental form in terms of the Jacobi tensor of the ambient space. This approach allows us to easily recover several important results in the literature on complete submanifolds with relative nullity of the sphere as well as derive new strong consequences in hyperbolic and Euclidean spaces. Among the consequences of our main theorem are results on submanifolds with sufficiently high index of relative nullity, submanifolds with nonpositive extrinsic curvature and submanifolds with integrable relative conullity. We show that no complete submanifold of hyperbolic space with sufficiently high index of relative nullity has extrinsic geometry bounded away from zero. As an application of these results, we derive an interesting corollary for complete submanifolds of hyperbolic space with nonpositive extrinsic curvature and discourse on their relation to Milnor's conjecture about complete surfaces with second fundamental form bounded away from zero.