Geometry Webinar AmSur/AmSul

A Nash type theorem and extrinsic surgeries for positive scalar curvature

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Resumo: As shown by Gromov-Lawson and Stolz the only obstruction to the existence of positive scalar curvature metrics on closed simply connected manifolds in dimensions at least five appears on spin manifolds, and is given by the non-vanishing of the α-genus of Hitchin. When unobstructed we shall realise a positive scalar curvature metric by an immersion into Euclidean space whose dimension is uniformly close to the classical Whitney upper bound for smooth immersions, and it is in fact equal to the Whitney bound in most dimensions. Our main tool is an extrinsic counterpart of the well-known Gromov-Lawson surgery procedure for constructing positive scalar curvature metrics. This is a joint work with B. Hanke published in Commun. Contemp. Math. 2022.