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Title: Concordances in Positive Scalar Curvature and Index Theory

Abstract: Scalar curvature is a local invariant of a Riemannian manifold. It measures asymptotically the volume growth of geodesic balls. Understanding the topological space of all positive scalar curvature metrics on a closed manifold has been an active field of study during the last 30 years. So far, these spaces have been considered from an isotopy viewpoint. I will describe a new approach to study this space based on the notion of concordance. To this end, I construct with the help of cubical set theory a comparison space that only encodes concordance information and in which the space of positive scalar curvature metrics canonically embeds. After the presentation of some of its properties, I will show that the indexdifference factors over the comparison space using a new model of real K-theory that is based on pseudo Dirac operators.