Prof. Dr. Thomas Schick
The space of metrics of positive scalar curvature

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Fix a compact smooth manifold without boundary. One of the intensively studied questions of global Riemannian geometry is: "is there a metric of positive scalar curvature on M, and if so, how many".
A more precise variant of the second part is: what can one say about the space of metrics of positive scalar curvature, if it is not empty. We will show how one can use methods from index theory (of the Dirac operator) to give answers to this question, and will point to very recent constructions of Crowley-S. and Hanke-S.-Steimle of examples where these methods can indeed be applied.

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