The Yamabe Problem

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- Introduction and motivation to the problem: curvature tensors on Riemannian manifolds, the Scalar curvature, conformal maps; the Poincaré conjecture and the min-max argument.
- The loss of compactness due to the critical exponent in the Sobolev embedding theorems.
- The relation between the best Sobolev constant in $\mathbb{R}^n$ and the Yamabe constant of the sphere.
- The Yamabe-Trudinger-Aubin theorem on the solvability of the problem.
- Eventually some mentions regarding generalizations to manifolds with boundary, CR-manifolds, changing-sign solutions.