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Extremal Metrics for GJMS operators in Critical Dimensions

GJMS operators are constructed by Graham, Jenne, Mason and Sparling as formally self-adjoint, elliptic, conformally covariant differential operators. In dimensions 2, the operator is Laplace-Beltrami operator and in dimensions 4, the operator is Paneitz operator. In critical dimensions, a symmetric stress energy tensor plays an important role in finding and characterizing extremal metric. Here, finding the extremal metric for k-th eigenvalue of the GJMS operator is essentially finding a local extrema among the analytic perturbation of the metric. In this talk, we discuss the necessary and sufficient conditions of extremal metrics of GJMS operators using the special properties of simplification in the critical dimensions.