ON THE STRUCTURE OF CONFORMALLY COVARIANT POWERS OF THE LAPLACIAN

Abstract. It is well-known that in two dimensions the Laplace-Beltrami operator is conformally covariant. The Yamabe operator extends this fact to higher dimensions. It arises by correcting the Laplacian by a multiple of scalar curvature. More generally, one can also correct powers of the Laplacian as to obtain conformally covariant operators. Such operators were constructed by Graham, Jenne, Mason and Sparling using the Fefferman-Graham ambient metric construction. In recent years, these GJMS-operators have found central interest in conformal geometry (in particular, through their relation to Branson's Q-curvature). However, the structure of the lower order correction terms is notoriously complicated. In two lectures we describe how one can resolve that structure in an esthetically appealing way.