# ON THE STRUCTURE OF BRANSON-GOVER AND $Q$-CURVATURE OPERATORS ON DIFFERENTIAL FORMS

ANDREAS JUHL

Abstract. In 2004 T. Branson and R. Gover introduced generalizations to operators acting on differential forms of the famous conformal powers of the Laplacian (GJMS operators) and of the related scalar curvature invariant known as Branson's $Q$-curvature. Their definitions rest on the conformal tractor calculus. We found that these constructions admit an alternative description in terms of appropriate generalizations of the notion of residue families. In the scalar case, this notion has been much introduced by the author and studied much in recent years. In the form case, residue families are conformally covariant one-parameter families of differential operators which are curved versions of so-called symmetry breaking operators (a concept recently coined by T. Kobayashi). In the lecture, we describe these concepts, their interactions and some resulting new formulas for the critical $Q$-curvature operators.