Peter D Hislop (hislop@ms.uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506-0027, Peter A. Perry* (perry@ms.uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506-0027, and Siu-Hung Tang (shtang@ms.uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506-0027. CR-Invariants and the scattering operator for complex manifolds with CR-boundary.

This is a report on joint work with Peter Hislop and Siu-Hung Tang. Suppose that $M$ is a CR-manifold bounding a compact complex manifold $X$. The manifold $X$ admits an approximate Kähler-Einstein metric $g$ which makes the interior of $X$ a complete Riemannian manifold. We identify certain residues of the scattering operator as CR-covariant differential operators and obtain the CR $Q$-curvature of $M$ from the scattering operator as well. Our results are an analogue in CR-geometry of Graham and Zworski’s result that certain residues of the scattering operator on a conformal compact manifold with a Poincaré-Einstein metric are natural, conformally invariant differential operators, and the $Q$-curvature can be recovered from the scattering operator. (Received September 11, 2006)