New invariants for CR and contact manifolds

**Raphael Ponge**
(UC Berkeley)

In this talk I will explain the construction of several new invariants for CR and contact manifolds as noncommutative residue traces of various geometric pseudodifferential projections. In the CR setting these operators arise from the $\overline{\partial}_b$ complex and include the Szegő projections. In the contact setting they stem from the generalized Szegő projections at arbitrary integer levels of Epstein-Melrose and from the contact complex of Rumin. In particular, we recover and extend recent results of Hirachi and Boutet de Monvel and answer a question of Fefferman.