2018 Taipei Conference on Geometric Invariance and Partial Differential Equations
Institute of Mathematics, Academia Sinica, Taipei, Taiwan
January 17 – 20, 2018

Szegő kernels and equivariant embedding theorems for Complex and CR manifolds

Chin-Yu Hsiao

Institute of Mathematics, Academia Sinica, Taiwan
E-mail:**chsiao@math.sinica.edu.tw**

Abstract

We consider a compact connected CR manifold with a transversal CR locally free $\mathbb{R}$-action endowed with a rigid positive CR line bundle. We prove that a certain weighted Fourier-Szegő kernel of the CR sections in the high tensor powers admits a full asymptotic expansion and we establish $\mathbb{R}$-equivariant Kodaira embedding theorem for CR manifolds. Using similar methods we also establish an analytic proof of an $\mathbb{R}$-equivariant Boutet de Monvel embedding theorem for strongly pseudoconvex CR manifolds. In particular, we obtain equivariant embedding theorems for irregular Sasakian manifolds. As applications of our results, we obtain Torus equivariant Kodaira and Boutet de Monvel embedding theorems for CR manifolds and Torus equivariant Kodaira embedding theorem for complex manifolds. This is a joint work with Hendrik Herrmann and Xiaoshan Li.