VIRTUAL EAST-WEST SCV SEMINAR

September 14, 2021

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The Inverse Spectral Problem for the Leray Transform in Two Settings in $\mathbb{C}^2$

We are concerned with the Leray transform $\mathbb{L}$, a skew projection acting on the L^2 space of functions defined on the boundary of a suitable domain $D \subset \mathbb{C}^n$, mapping onto the subspace of boundary values of holomorphic functions in D. We will focus on the case $n = 2$ in two settings, namely convex Reinhardt domains (based on the results of D. Barrett and L. Lanzani) and the so-called rigid Hartogs domains.
The starting point is the Leray spectrum, i.e. the spectrum of $\mathbb{L}^*\mathbb{L}$, which depends on the boundary measure. Then we will explore our ability to "hear" convex Reinhardt domains and rigid Hartogs domains based on their Leray spectra. To what extent can we recover either kind of domain?
