VIRTUAL EAST-WEST SCV SEMINAR

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Harmonic Bergman theory on punctured domains

This talk will highlight some unexpected dimension-dependent behavior of harmonic Bergman spaces that can occur for non-smooth domains in $\mathbb{R}^n$. In fact, such phenomena can be observed for bounded domains with smooth boundary that are punctured by removing a point. For these domains, it is possible to provide a complete characterization of those values of p for which the harmonic Bergman projection is L^p bounded and for which the spaces of L^p harmonic functions satisfy duality and L^2 approximation properties. Weak-type endpoint behavior and L^p-Sobolev irregularity of the harmonic Bergman projection (and a comparison to analogous results recently obtained by others for the ordinary Bergman projection on the Hartogs triangle in $\mathbb{C}^2$) will also be discussed. Joint work with Yuda Wang (Ohio State University).