VIRTUAL EAST-WEST SCV SEMINAR

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On unique continuation for solutions of elliptic equations and CR functions

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Motivated by applications to the unique continuation problem for CR mappings, in 1993, M. S. Baouendi and L. P. Rothschild proved that if a harmonic function u on $B_r^+ = \{x = (x', x_n) \in \mathbb{R}^n : |x| < r,\, x_n > 0\}$, satisfies $u(x', 0) \geq 0$ and is flat at the origin, then $u \equiv 0$ on B_r^+. When $n = 2$, the result is due to X. Huang, S. G. Krantz, D. Ma, and Y. Pan. Baouendi and Rothschild conjectured a generalization of their boundary uniqueness result to solutions of general second order elliptic equations with real analytic coefficients. We will present a solution of this conjecture, a generalization to operators of any order, and discuss an application to unique continuation for boundary values of holomorphic functions.
