

# UNIQUE CONTINUATION FOR CR MAPPINGS AND SECOND ORDER PDES

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In this mini-course we will review past and recent works on the unique continuation problem for CR mappings and CR functions as well as solutions of second order elliptic differential operators with real analytic coefficients. Motivated by applications to the problem for CR mappings, in a series of papers (by Alexander, Baouendi, Rothschild, and Alinhac, Baouendi and Rothschild, Huang, Krantz, Ma and Pan, Huang and Krantz, Bell and Lempert, etc.), Baouendi and Rothschild proved a boundary unique continuation theorem for harmonic functions in  $\mathbb{R}^n$ . In their papers, they conjectured the validity of a similar theorem for solutions of second order elliptic operators with real analytic coefficients. In the mini-course, we will discuss the results obtained since the conjecture was made and finish with an indication of the solution of the conjecture.

The mini-course will cover:

1. Boundary unique continuation for holomorphic functions of one variable and harmonic functions of several variables.
2. Applications to unique continuation for CR mappings and CR functions.
3. The boundary pseudodifferential calculus of Boutet de Monvel.
4. Applications of Boutet de Monvel's calculus to the boundary unique continuation problem for second order elliptic operators. Application of the latter to the unique continuation problem for CR functions.