

CONFÉRENCE « ESPACES DE HILBERT DE FONCTIONS ANALYTIQUES »  
8–12 DÉCEMBRE 2008

CONFERENCE ON HILBERT SPACES OF ANALYTIC FUNCTIONS  
DECEMBER 8–12, 2008

## Poincaré variational problem in potential theory

Mihai Putinar

Department of Mathematics  
University of California at Santa Barbara  
Santa Barbara, CA 93106-3080  
USA

`mputinar@math.ucsb.edu`

---

The simultaneous diagonalization of two quadratic forms naturally attached to a domain in the Euclidean space has guided Poincaré in his study of the Dirichlet problem. Put in modern setting, and due to a pioneering work of Mark G. Krein, Poincaré's variational principle offers a deep understanding of modern aspects of function theory (structure of single and double layer potentials, quasiconformal mappings, Beurling–Schiffer transform) and provides the theoretical background of some recent studies of an inverse problem in electrostatics.

*Based on joint work with Dmitry Khavinson and Harold S. Shapiro.*