

Varying domains : Solution and stability of Dirichlet problems by variational methods

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In this talk we first give a variational characterization of the Perron solution of the Dirichlet problem. This investigation is motivated by recent results of Hildebrandt and of Simader. Our approach is based on domain convergence and throws new light on Hadamard's critical observations concerning the variational method for the Dirichlet problem. We also show how Hedberg's results [3] on stability and convergence can be incorporated into a variational approach. The talk is based on the papers [1] and [2].

- [1] W. Arendt, D. Daners : The Dirichlet problem by variational methods. Bull. Lond. Math. Soc. 40 (2008), no. 1, 51–56. (<http://dx.doi.org/10.1112/blms/bdm091>)
- [2] W. Arendt, D. Daners : Varying domains : stability of the Dirichlet and the Poisson problem. Discrete Contin. Dyn. Syst. 21 (2008), no. 1, 21–39.
- [3] L.I. Hedberg : Approximation by harmonic functions, and stability of the Dirichlet problem. Exposition. Math. 11 (1993), 193–259.