

Mathematical Colloquia

Monday, 05 November 2018

17:15 h, Lecture Room 119

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Concavity of solutions to elliptic equations

Abstract:

A natural question when solving a Dirichlet problem is whether some relevant geometric property of the domain and/or of the boundary data is inherited by the solution. In this framework, concavity properties of solutions of elliptic equations in convex domains are a typical subject of investigation: classical results are for instance the log-concavity of the first positive Dirichlet eigenfunction or the concavity of the square root of the torsion function. I want to give an overview of the topic and present a technique which permits to prove very general results and also shows how these questions are deeply linked to proving Brunn-Minkowski inequalities of related variational functionals.