

Einladung

In der Reihe „Chemnitzer Mathematisches Colloquium“ der Fakultät für Mathematik der TU Chemnitz spricht

Herr Prof. Dr. David Krejcirik
(Czech Technical University in Prague)

über das Thema

What is the optimal geometry for vibrating membranes?

Der Vortrag findet am

Donnerstag, dem 22. November 2018, um 16.00 Uhr im Raum B202,
Reichenhainer Straße 70

statt.

Ich möchte Sie hiermit recht herzlich zu dieser Veranstaltung einladen. Das Kolloquium wird von Herrn Dr. Marcel Hansmann geleitet.

Abstract:

It is well known that, among all planar sets of a given perimeter, the disk has the largest area [Dido 900 BC]. Going from geometric to physical quantities, the spectral analogue states that, among all planar membranes of a given area and with fixed edges, the circular membrane produces the lowest fundamental tone [Faber-Krahn AD 1923-4]. Is the disk always the optimiser for such spectral-geometric problems? In this talk, I will give an overview of recent positive and negative results in the research area. As the most striking fact, I will present my joint work [with Freitas 2015] in which we show that the disk actually stops to be the optimiser for elastically supported membranes, disproving in this way a long-standing conjecture of [Bareket 1977]. This provides the first known example where the extremal domain for the lowest eigenvalue of the Laplace operator is not a disk. But, what is the optimal geometry in this case?

Prof. Dr. Christoph Helmberg
Dekan