

SALZBURG MATHEMATICS COLLOQUIUM

Winter 2018/2019

Franz Schuster (Vienna)

„Affine vs. Euclidean isoperimetric inequalities“

November 22, 2018

Abstract:

In this talk we explain how every even, zonal measure on the Euclidean unit sphere gives rise to an isoperimetric inequality for sets of finite perimeter which directly implies the classical Euclidean isoperimetric inequality. The strongest member of this large family of inequalities is shown to be the only affine invariant one among them – the Petty projection inequality. As an application, a family of sharp Sobolev inequalities for functions of bounded variation is obtained, each of which is stronger than the classical Sobolev inequality. Moreover, we relate our new Sobolev inequalities to Gromov's sharp Gagliardo-Nirenberg Sobolev inequality for general norms and discuss further improvements of special cases. (Joint work with Christoph Haberl.)

Thursday, **15:00-15:45**

Hörsaal 414, 1. Stock