School of Mathematical and Statistical Sciences
Colloquium Series

The Sphere Covering Inequality and its applications

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Abstract

In this talk, I will introduce a new geometric inequality: the Sphere Covering Inequality. The inequality states that the total area of two distinct surfaces with Gaussian curvature less than 1, which are also conformal to the Euclidean unit disk with the same conformal factor on the boundary, must be at least 4π. In other words, the areas of these surfaces must cover the whole unit sphere after a proper rearrangement. We apply the Sphere Covering Inequality to show the best constant of a Moser-Trudinger type inequality conjectured by A. Chang and P. Yang. Other applications of this inequality include the classification of certain Onsager vortices on the sphere, the radially symmetry of solutions to Gaussian curvature equation on the plane, classification of solutions for mean field equations on flat tori and the standard sphere, etc. The resolution of several open problems in these areas will be presented. The talk is based on joint work with Amir Moradifam from UC Riverside

Date: Friday, February 16, 2018
Time: 4:00pm–5:00pm
Place: EMAGC 1.410

The talk will be delivered live at the Edinburg campus and will be streamed to the Brownsville campus at BLHSB 2.312.
Refreshments will be served at 3:50pm.

For further information or for special accommodations, please contact Dr. BaoFeng Feng at 665-2269 or via email at baofeng.feng@utrgv.edu.

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