Analysis and Differential Geometry
Seminar

Quermassintegrals inequalities and curvature measure problem

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Abstract: We will present some recent joint work on two different but related problems : quermassintegral inequalities and prescribing curvature measure problem. We use a parabolic fully nonlinear partial differential equation to prove isoperimetric inequalities for quermassintegrals on a starshaped bounded domain. On the other hand, curvature measure can be viewed as a local version of the quermassintegrals. The general k-th prescribing curvature measure problem is equivalent to a second order fully nonlinear elliptic partial differential equation defined on a unit sphere. It has been an open problem for the existence of an admissible solution of this equation. The major new contribution of our recent work is the a priori $C2$ estimates for admissible solutions which leads to the existence theorems.

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Mathematics and Science Center: W301

Mathematics and Computer Science
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