The 5th Symposium on Analysis & PDEs

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Minicourse. Nonlinear PDEs in the study of conformal invariants

– Lecture I. *Conformal invariants: perspectives from geometric PDE.*

We will survey properties of a class of integral conformal invariants conformal geometry and their connection to geometric quantities on conformally compact Einstein manifolds in ADS/CFT setting. Special emphasis will be on the role played by non-linear elliptic PDE.

– Lectures II & III. *Higher order isoperimetric inequalities: an approach via method of optimal transport.*

One of the method to derive sharp isoperimetric inequality for domains in the Euclidean is to apply the method of optimal transport; in this talk, I will report some recent joint work with Yi Wang to extend the method to prove some higher order isoperimetric inequalities with weights involving symmetric functions of the second fundamental form.