ANALYSIS/PDE SEMINAR SERIES

TOPIC: The Four Vertex Theorem for Space Curves

SPEAKER: Xu-Jia Wang, Australian National University

TIME: 3:00pm-4:00pm, Friday, May 25, 2018

VENUE: Room 264, Geography Building, Zhongbei Campus

HOST: Xingbin Pan, East China Normal University

ABSTRACT OF THE TALK

The classical four vertex theorem characterizes an interesting property of closed planar curves. It has been extended to space curves on sphere and on more general convex surfaces, namely a smooth, closed curve in $\mathbb{R}^3$ has at least four points with vanishing torsion if it lies on a convex surface. In this paper we discuss properties of locally convex surfaces and prove the existence of locally convex surfaces of constant Gauss curvature. As an application we prove the four vertex theorem for space curves on locally convex surfaces, extending the corresponding result of Ghomi.

BIOGRAPHY

Xu-Jia Wang received his Ph.D. in mathematics from Zhejiang University in 1990. He was then a Lecturer and Associate Professor at Zhejiang University until 1995 when he moved to the Australian National University as a Research Fellow. He is currently a Professor of mathematics at the ANU. His research interest is analysis and partial differential equations, and their applications in geometry and physics.