**ANALYSIS/PDE SEMINAR SERIES**

**TOPIC:** Almost Global Solutions for the Semi-linear Klein-Gordon Equations on the Circle  
**SPEAKER:** Daoyuan Fang, Zhejiang University  
**TIME:** 3:00pm-4:00pm, Thursday, November 9, 2017  
**VENUE:** Room 264, Geography Building, Zhongbei Campus  
(East China Normal University, Zhongbei Campus, Geography Building, Room 264)

**ABSTRACT OF THE TALK**

We show that the solution to the semi-linear Klein-Gordon equation on the circle with a nonlinearity satisfying a convenient condition, exists almost globally, for almost every positive mass, provided that it is either even or odd as a function of the space variable. We also show that if the nonlinearity only depends on the unknown and its time derivative and if it is also even as a function of the time derivative of the unknown, then the solution exists almost globally, for almost every positive mass. The results are based on the method of normal forms. The difficulty is to find a structure of the nonlinearity so that the process of normal forms can be performed up to any order.

This is the joint work with Zheng Han and Qidi Zhang.

**BIOGRAPHY**

Daoyuan Fang is from Pujiang County, Zhejiang Province. He received B.S. degree in Mathematics from Zhejiang Normal University in February of 1982 and Ph.D. from the Institute of Mathematics at Fudan University in July of 1992. Subsequently, he joined the Department of Mathematics at Zhejiang University in August of 1992 and has been Professor and doctoral advisor since 1999. His research interests mainly lie in wave equation, Schrödinger equation, and mathematical theories on equations of fluid mechanics.