北京理工大學

数学与统计学院学术报告

Some Recent Results on Nonlinear Problems on the Heisenberg Group

报告人：唐仲伟 (北京师范大学)

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报告人简介： 唐仲伟，男，1976年生，教授，博士生导师，现担任北京师范大学数学科学学院党委书记、教学指导委员会主任。2004年7月在中国科学院数学与系统科学研究院应用数学所获得博士学位后到北京师范大学工作至今，2007年9月—2009年9月受德国洪堡基金会资助在德国吉森大学做洪堡学者。主要研究领域为偏微分方程及非线性分析，在IMRN,JFA, Nonlinearity, Calc. Var. Partial Differential Equations, J. Differential Equations，Pacific J. Math.等期刊上发表SCI论文近80篇，主持国家自然科学基金7项。

摘要： This talk is concerned with nonlinear equations involving sub-elliptic operators on the Heisenberg group. We first investigate the Bianchi − Egnell stability inequality associated with the sharp Sobolev inequality and establish the existence of a nontrivial minimizer by proving a strict inequality for the optimal stability constant. Second, we study the non-degeneracy of solutions to critical CR-Yamabe type problems on the Heisenberg group, as well as the existence of concentrating solutions to slightly subcritical equations involving the sub-Laplacian on bounded domains. Under suitable assumptions and for sufficiently small parameters, we construct sign-changing solutions with exactly two nodal domains. Finally, we establish the density and multiplicity of positive solutions to the prescribed Webster scalar curvature problem on the standard unit CR sphere. When the curvature function is asymptotically periodic on the Heisenberg group, we also prove the existence of infinitely many positive solutions. This is a joint work with Dr. Jiechen Qiang, Heming Wang, Bingwei Zhang and Yichen Zhang.