



北京理工大学

数学与统计学院学术报告

Uniqueness of critical points of the second Neumann eigenfunctions on triangles

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摘要: The celebrated hot spots conjecture says that the second Neumann eigenfunctions attain their global maximum (hottest point) only on the boundary of the domain. When the domain is a triangle, the nonexistence of interior critical point was proved in a recent paper by Judge and Mondal [Ann. Math., 2022], however, several open problems regarding the second Neumann eigenfunction in triangles remained open. In our talk, we answer these unresolved problems, including (1) the uniqueness of non-vertex critical point, (2) the sufficient and necessary conditions for the existence of non-vertex critical point, (3) the exact location of the global extrema. (4) the location of endpoints of the nodal line, and so on. Our approach employs the continuity methods via domain deformation. This is a joint work with Prof. Hongbin Chen and Prof. Changfeng Gui.

个人简介: 姚若飞，华南理工大学副教授。姚若飞博士在西安交通大学获得博士学位，曾在中南大学从事博士后研究，合作导师是桂长峰教授。研究方向是非线性偏微分方程，目前对椭圆方程正解解的对称性、Neumann边值条件下第二特征函数的定性性质十分有兴趣，在CVPDE、Nonlinearity、JDE等期刊发表SCI论文十余篇。