北京理工大學

数学与统计学院学术报告

Recoloring P_5-free graphs

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地　点： 文萃楼D703

邀请人： 韩杰 教授

摘　要： A proper k-coloring of a graph $G=(V,E)$ is a mapping ϕ: $V(G)\to\{1,2,\ldots,k\}$ such that $\phi(u)\neq\phi(v)$ for any two adjacent vertices $u,v\in V(G)$. The k-reconfiguration graph for all proper k-colorings of G, denoted by $\mathcal{R}_k(G)$, is the graph whose vertices are the k-colorings of G and two k-colorings are joined by an edge if they differ in color on exactly one vertex. Bonamy et al. established that for any 2-chromatic P_5-free graph G, $\mathcal{R}_k(G)$ is connected for each $k\geq 3$. On the other hand, Feghali and Merkel proved the existence of a $7p$-chromatic P_5-free graph G for every positive integer p, such that $\mathcal{R}_{8p}(G)$ is disconnected.

In this talk, we demonstrate that $\mathcal{R}_k(G)$ remains connected for each 3-chromatic P_5-free graph G and each $k\geq 4$. Furthermore, for each $t\geq 4$ and $t+1\leq k\leq\binom{t}{2}$, we provide a construction of a t-chromatic P_5-free graph G with $\mathcal{R}_k(G)$ being disconnected. This resolves a question posed by Feghali and Merkel.

Joint work with Hui Lei, Yulai Ma, Yongtang Shi, Susu Wang.

报告人简介： 苗正科，江苏师范大学教授、博士生导师、数学研究院执行院长；福建师范大学兼职教授、分析数学及应用教育部重点实验室副主任。研究方向是图论及其应用研究，主要从事组合矩阵论、图着色理论、整数流和圈覆盖等方面的研究工作；先后主持和参与国家自然科学基金重点项目和国家重点研发计划项目 3 项、面上等其他项目 9 项；在《Journal of Combinatorics Theory, Series B》、《Journal of Graph Theory》、《European Journal of Combinatorics》等期刊上发表学术论文 100 余篇；获教育部自然科学二等奖 1 项，江苏省优秀教学成果奖 2 项。现任中国运筹学会常务理事及其图论组合分会理事长。