


复旦大学数学科学学院
数学综合报告会

报告题目：Large The Betti Number of the Independence Complex of Ternary Graphs

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报告摘要：

Given a graph G, the \textit{independence complex} $I(G)$ is the simplicial complex whose faces are the independent sets of $V(G)$. Let b_i denote the i-th reduced Betti number of $I(G)$, and let $b(G)$ denote the sum of $b_i(G)$'s. A graph is ternary if it does not contain induced cycles with length divisible by three. G. Kalai and K. Meshulam conjectured that $b(G)=2$ and $b(H)\in \{0,1\}$ for every induced subgraph H of G if and only if G is a cycle with length divisible by three. We prove this conjecture. This extends a recent results proved by Chudnovsky, Scott, Seymour and Spirkl that for any ternary graph G, the number of independent sets with even cardinality and the independent sets with odd cardinality differ by at most 1.
This is joint work with a graduate student Wentao Zhang in Fudan University.

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