



复旦大学数学科学学院 数学综合报告会

报告题目: **Fullerenes, Toric Topology and Hyperbolic Manifolds**

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摘要: By a fullerene we mean a combinatorial simple 3-polytope with only pentagonal and hexagonal facets. This is a mathematical model for spherical shaped molecule of carbon with atoms linked into pentagonal and hexagonal rings (1996 Nobel Prize in chemistry to Robert Curl, Harold Kroto and Richard Smalley).

The fundamental construction of Toric Topology assigns to each simple n -polytope P with m facets a smooth $(n+m)$ -manifold $Z(P)$. There is a canonical action of compact m -torus T^m on $Z(P)$, whose orbit space $Z(P) / T^m$ is identified with the polytope P . There is a combinatorial invariant $b(P)$ defined as the maximal dimension of a subtorus in T^m acting freely on $Z(P)$. This invariant takes values between 1 to $m-n$

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