

# **Polyhedra**

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## **Abstract**

Together with numbers, plane curves and figures, polyhedra stand at the beginning of mathematics. They have also played particular roles in the arts, sciences and even in religion. After centuries of investigation, is there still anything interesting to study? Are polyhedra of any practical use?

In my lecture, I will briefly survey some wonderful results on polyhedra and a few simple looking problems, open for a long period of time. I will particularly focus on various techniques to describe polyhedra and discuss their usefulness. I will explain several algorithms to solve “polyhedral problems” that arise in various applications and I will mention which of these methods work theoretically and which in practice. I will conclude my lecture with a survey of large-scale real-world applications (such as logistics, public transport, telecommunication, energy,...), investigated in my research group, where linear programming and polyhedral results play important roles for the solution.