Recent developments of combinatorial rigidity theory

Naoki Katoh
(Professor, Department of Informatics, Kwansei Gakuin University,
Professor Emeritus, Kyoto University, Japan)

Abstract

Rigidity and stability analysis for discrete structures such as frame structure and linkage is a classical topic in physics and engineering. This is a fundamental topic that appears in advanced research challenges such as modern behavior analysis of molecular framework and robotics, localization of crystal structures. The objective of combinatorial rigidity theory is to clarify combinatorial characterization of discrete structures. This talk introduces the fundamental theory and recent developments of combinatorial rigidity and touches upon modern applications.

Research area(s): Combinatorial optimization, the design and analysis of combinatorial and geometric algorithms