



Sixty years of isomorphism testing

SPEAKER Prof Brendan D. McKay

Emeritus Professor
School of Computing Australian
National University

DATE 23 Jul, 2026 (Thu)

TIME 10:00 AM - 11:00 AM

VENUE B5-207, 5/F, Blue Zone, Yeung Kin Man
Academic Building, City University of
Hong Kong, 83 Tat Chee Avenue,
Kowloon Tong

ABSTRACT

Two graphs are called isomorphic if they are the same apart from the labelling of their vertices. The importance of the question lies in the fact that isomorphic graphs have the same values of most properties of practical interest. For example, chemists need to know if two molecules are the same compound despite them being presented with the atoms numbered differently. The talk will trace the development of computer algorithms for graph isomorphism testing from its origins in the early 1960s to the best programs available today. It will also briefly touch on the theory of the problem including recent developments.

BIOGRAPHY

Prof Brendan D. McKay is a world-renowned Australian mathematician, computer scientist, and Emeritus Professor in the Australian National University (ANU) School of Computing. Celebrated for his extensive publications in combinatorics, he was awarded the Australian Mathematical Society Medal in 1990 and elected a Fellow of the Australian Academy of Science in 1997, a Fellow of the Australian Mathematical Society in 2000, and Australian Museum Eureka Prize for Critical Thinking, 2003. His research focuses primarily on practical programming solutions for problems in graph theory and combinatorics. In particular, he is a leading researcher on the graph isomorphism problem, of which his package NAUTY is the undisputed champion. This breakthrough has led to numerous extensions within combinatorial generation problems, with wide-ranging applications across mathematics, physics, chemistry, and biology.

All are welcome!



In case of questions, please contact Prof LIANG Weifa at weifa.liang@cityu.edu.hk, or visit the CS Departmental Seminar Web at <https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums>.