ACADEMY OF DISCRETE MATHEMATICS AND APPLICATIONS

ADMA COLLOQUIUM LECTURE SERIES (ONLINE)

ABOUT ADMA

The Academy of Discrete Mathematics and Applications (ADMA) is a registered professional body functioning with the aim of promoting active and quality research in Discrete Mathematics and allied subjects. Established in 2005, it has been successfully disseminating front-line research culture among the discrete mathematicians in India.

Sixth Lecture (In memory of Prof. E. Sampathkumar)

TITLE: **DOMINATION IN GRAPHS AND FORBIDDEN CYCLES**

SPEAKER: **PROF. MICHAEL HENNING, UNIVERSITY OF JOHANNESBURG, SA**

Date: **26th October, 2024 (Saturday)**

TIME: **07:00PM TO 08:00PM (IST)**

Registration Link: **https://forms.gle/soNikd79ndq4DmTN9**

Registration deadline is 23rd October, 2024 04:00pm (IST).

NOTE: E - certificate will be issued to only those participants who are members of ADMA. For membership see www.adma.co.in

ABOUT SPEAKER

Prof. Michael Henning,
University of Johannesburg, SA

Combinatorics, in particularly graph theory and hypergraph theory, is Michael Henning's area of research focus. His favourite topics are in the area of domination theory in graphs and transversals in hypergraphs, with applications to several areas including matching, independence, and colourings in graphs and hypergraphs.

After obtaining his PhD in Mathematics from the then University of Natal (now the University of KwaZulu-Natal), Michael worked as a Lecturer at the University of Zululand. After postdoctoral work at Clemson University in the USA he moved to UKZN, leaving after almost 20 years (19 years 4 months) with the position of Full Professor to take up his current position of Research Professor at the University of Johannesburg on 01 May 2010.

He has published over 575 articles across a variety of journals during his career, including over 110 papers in Discrete Mathematics and over 70 papers in Discrete Applied Mathematics. Since 2013 he has published 6 research books and 20 book chapters. He has been a plenary speaker at many international conferences.

Domination in graphs and forbidden cycles

Michael A. Henning
Department of Mathematics and Applied Mathematics
University of Johannesburg

Abstract

A set S of vertices in a graph G is a dominating set of G if every vertex not in S has a neighbor in S, where two vertices are neighbors in G if they are adjacent. A dominating set S with the additional property that every vertex in S has a neighbor in S is a total dominating set of G. The domination number, $\gamma(G)$, of G is the cardinality of a minimum dominating in G, while the total domination number, $\gamma_t(G)$, of G is the cardinality of a minimum total dominating in G. We present bounds on the domination and total domination numbers of a graph with given minimum degree. We discuss results showing that if certain cycles are forbidden, then these known upper bounds on core domination parameters can be improved.