Foreword

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This Special Issue of Mathematics in Computer Science, “Graph Theory and Applications”, follows from the International Conference on Mathematics and Computer Science (ICMCS 2010) which was held from 5th to 6th February 2010 at Loyola College, Chennai, India; preliminary versions of most of the papers appearing in this volume were presented at the ICMCS 2010 conference, although a few other related papers have also been selected for inclusion.

ICMCS in 2010 was dedicated to the Memory of Professor Gary Bloom from CUNY, USA who sadly passed away 5 months previously, on the 6th September 2009. Although ICMCS is a conference on Mathematics and Computer Science, the papers selected here centre around the topic of Graph Theory, a subject close to Gary Bloom’s heart.

Gary had a love of India and visited the country several times. He was Invited Speaker at ICMCS in both 2007 and 2009 and enjoyed staying on and working with researchers and especially students at Loyola College.

In this volume, we present 14 selected papers. Each paper has been refereed by at least two referees and is an improved and enlarged version of the corresponding ICMCS 2010 presentation. We would like to thank the contributors and the referees, all of whom have contributed to the production of this issue.

Of the 14 Graph Theory articles presented here, 8 are concerned with Graph Labeling, an area of Graph Theory in which Gary spent much work and produced many results. However Gary was not only a labeling expert and it is fitting that the six remaining contributions are from many differing areas of Graph Theory reflecting Gary’s widespread interest and expertise.

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Three papers contain new results concerning magic-type graphs. Lopez, Muntaner-Batle and Ruiz-Font present a novel method of constructing super-magic graphs related to colourings of the complete graph. Vertex labeled edge magic graphs do not exist (except for some matchings), however, Sugeng and Ryan were able to provide new results by extending the concept to vertex labeled clique magic graphs. In the related area of anti-magic graphs, Phanalasy et al. describe an application of complete separating systems to produce algorithms for constructing anti-magic labelings for the Cartesian product of regular graphs.

Two papers concentrate on graceful labelings. The first, by Jesintha and Sethuraman shows that certain banana trees are graceful while the second, by Brankovic and Wanless surveys known results and future directions in the area. Three more papers address non-classical labelings. Chaudhuri and Thompson give algorithms for radio labelings of trees, Slater and O'Neal introduce closed/open neighbourhood sums while Ichishima and Oshima extend results on partitional labelings.

Just as Gary's interests were not restricted to labelings, so we felt the articles in this issue should also reflect some wider aspects of Graph Theory. From Rajasingh and Arockiaraj we have a solution to the edge isoperimetric problem for hypercubes, while from Rajan, Thomas and Monica comes an investigation of conditional resolvability of certain communication networks. In a very nice paper, Cada, Flandrin and Kang give degree conditions sufficient for a locally claw-free graph to have a traceable set. Basavanagoud and Mirajkar look at the coarseness of Plick graphs while B.D. Acharya produces a study on hypergraphs by considering supra-hereditary properties. Finally, there is a paper on graph drawing by Night, Monday and Raman, a more recent research area of Graph Theory.

We believe this special issue is a fitting memorial to Professor Gary Bloom and trust that all readers will enjoy the papers presented in this collection.