

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Cooper, J. and Nicolescu, R. (2019) 'Alternative representations of P systems solutions to the graph colouring problem', Journal of Membrane Computing. Springer Singapore, 1(2), pp. 112–126. doi: 10.1007/s41965-019-00013-2.

This paper forms the basis for Chapter 5 "The Graph Colouring Problem".

This journal paper is partially based on an earlier conference paper: Cooper, J. and Nicolescu, R. (2018) 'Alternative Representations of P Systems Solutions to the Graph Colouring Problem', in Dineen, M. J. and Nicolescu, R. (eds) Proceedings of ACMC 2018. Auckland, New Zealand: Centre for Discrete Mathematics and Theoretical Computer Science, University of Auckland, Auckland, New Zealand (Asian Conference on Membrane Computing), pp. 340–357.

The main changes are the addition of comparative testing of the CML simulation against MeCoSim, and further analysis of the cP system.

Nature of contribution
by PhD candidate

Devised cP system; programmed and ran experiments; prepared figures; drafted and revised manuscript

Extent of contribution
by PhD candidate (%)

80


CO-AUTHORS

Name	Nature of Contribution
Radu Nicolescu	Provided editorial support. Assisted with finalising cP system.

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Radu Nicolescu		28/09/2021