

Title: Computational Approaches to Open Problems in Combinatorics

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Abstract:

Combinatorics furnishes a wide spectrum of open problems and conjectures, that often lend themselves to computational approaches. We will discuss several such open problems that can be described in a unified manner via the periodic and aperiodic function associated to a finite sequence. We will also present traditional tools and techniques that are used in algorithmic schemes to tackle such problems. Arguably these traditional methodologies have reached a point of saturation, so we will present some new ideas that aim to bring into bear SAT solving in these hard combinatorial problems. Joint work with Vijay Ganesh et al.

Brief Bio:

Ilias Kotsireas serves as a Computer Science full professor at Wilfrid Laurier University since 2011. He has over 100 refereed journal and conference publications, edited books and special issues of journals in the areas of Computational Algebra, Metaheuristics, Dynamical Systems and Combinatorial Design Theory. He serves on the Editorial Board of 4 international journals published by Elsevier and Springer. He has organized a large number of international conferences in Europe, North America and Asia, often serving as a Program Committee Chair or General Chair. He was a co-founder of the Computational Science seminar at Wilfrid Laurier University and has been coordinating the seminar activities on a monthly basis over the past 9 years. His research is and has been funded by NSERC and the European Union. He has received funding for conference organization from Maplesoft, the Fields Institute and several Wilfrid Laurier University offices. He is currently serving a 4-year term (2013-2017) as Chair of ACM SIGSAM.