**Hybrid particle swarm optimization with particle elimination for the high school timetabling problem**


## Abstract

In this paper, a PSO-based algorithm that hybridized Particle Swarm Optimization (PSO) and Hill Climbing (HC) is applied to high school timetabling problem. This hybrid has two features, a novel solution transformation and particle elimination. The proposed methodologies are tested on the XHSTT-2014 dataset (which is relatively new for the school timetabling problem) plus other additional instances. The experimental results show that the proposed algorithm is efective in solving small and medium instances compared to standalone HC and better than the conventional PSO for most instances. In a comparison to the state of the art methods, it achieved the lowest mean of soft constraint violations for 7 instances and the lowest mean of hard constraint violations for 1 instance.