DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
ODENSE UNIVERSITY

COMPUTER SCIENCE COLLOQUIUM

Domination Analysis in Combinatorial Optimization: probability, graphs and groups working together

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Abstract: The *domination number*, $dom(\mathcal{A}, n)$, of an approximation algorithm for a combinatorial optimization problem is the maximum integer $k = k(n)$ such that, for every instance $\mathcal{I}$ of size n of the problem $\mathcal{A}$ produces a solution x which is not worse than at least k solutions in $\mathcal{I}$ including x itself. We consider a fairly general (though, simple) algorithm that has factorial domination number for the traveling salesman and quadratic assignment problems. This, in particular, settles a conjecture by Glover and Punnen (1997). Probabilistic, graph-theoretical, group-theoretical and number-theoretical methods and results are used.

This is joint work with Anders Yeo.

Jørgen Bang-Jensen