Niels Christian Petersen

University of Southern Denmark

Extensions of a two-commodity flow formulation for the symmetric TSP

This paper is concerned with extensions of the two-commodity flow formulation of the ATSP suggested by Finke et al. (1984). A two-commodity flow formulation for the symmetric TSP is suggested. It is demonstrated that this formulation is tight in the sense, that the value of the flow variables corresponding to any given Hamiltonian tour is unique. This result allows for an extension of the model to i) the ATSP with only $(n-1)(n+2)/2$ binary variables, ii) the SOP, iii) the MSTSP, iv) the MDTSP, v) the MDMSTSP, vi) the TSPTW, and vii) the VRP. Preliminary computational results for ATSPs from the TSPLIB based upon a GAMS-implementation are presented.