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Set covering/set partitioning applications

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Abstract

In this talk, we present Set Covering and Set Partitioning formulations derived from the Dantzig-Wolfe decomposition principle applied on several network flow-based non-linear formulations and a last one on a generalized assignment problem. Applications come from vehicle routing and crew scheduling models in the rail, urban, airline, and maritime transportation areas; from the formation of MBA teams; and from a secret ballot problem. In particular, we show how to get rid of the non-linear aspects of the original models. We also discuss the Integrality Property of the selected subproblems.