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Title: The Generalized Nested Steiner Routing Problem: A branch-and-cut approach.

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Abstract: This presentation will introduce the Generalized Nested Steiner Traveling Salesman Problem. The problem is defined on a possibly incomplete graph whose vertices are partitioned into clusters and may include both required and non-required vertices. The objective is to design a primary tour that visits at least one vertex in each cluster, together with a set of nested tours originating from the primary tour that collectively serve all required vertices. The problem will be formulated as an integer linear program of exponential size with respect to the problem size. To strengthen the formulation, both valid inequalities and optimality cuts will be introduced as well. The problem is solved using a branch-and-cut algorithm which shows promising results when compared to an alternative algorithm based on a compact formulation.

Bio: Alexander Ingemann Lindhardt is a second-year PhD student from Aarhus University, Denmark. His research focuses on exact solution approaches for vehicle routing problems on sparse graphs. He has a MSc in Economics and Business Administration with specialization in Operations and Supply Chain Analytics.