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Covering problems and length bounded connectivity

This talk is on problems with a covering objective or constraints. We start by defining the famous set covering, vertex covering and maximum coverage location problems and by discussing models, complexity and generalizations. Then we focus on two types of variants: first, variants where the choices of sets or vertices are done sequentially and second, variants where covering requires interaction among vertices, leading to length bounded connectivity. We relate these variants to applications in network recovery, refueling for alternative fuel vehicles and resilient access to health care.