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Convergence towards a local minimum by algorithms with a covering step

This talk introduces a new algorithmic step that may fit into virtually any optimization algorithm to strengthen its convergence analysis. By design, this so-called *covering step* ensures that all accumulation points generated by the algorithm are local solutions to the optimization problem. This new result holds true even for a discontinuous objective function, under a mild assumption that is discussed in details. A practical construction scheme for the covering step that works at low additional cost per iteration is also provided.

The content of this talk has been recently published on Optimization Letters 19, 211–231, 2025 (https://doi.org/10.1007/s11590-024-02165-2).