

Distributed branch-and-cut methods to solve up to now intractable optimization instances

By using and enhancing ParaSCIP, a distributed version of the state-of-the-art constraint integer programming solver SCIP (<http://scip.zib.de>), our goal is to push the current frontier of solvability regarding mixed integer linear programs, mixed integer nonlinear programs, and constraint integer programs further ahead. This project aims at solving problem instances which were up to now intractable. We expect to be able to solve several problems which have withstood persistent attempts to solve them by the international research community. Last year, using HLRN-II, we were able to solve two MIP instances from the MIPLIB2003 (<http://miplib.zib.de>), which nobody had been able to solve in the last 6 years, even though several of the commercial vendors tried.