

Institut f. Geometrie

Geometry Seminar

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Seminarraum 2 (Geometrie), Kopernikusgasse 24/IV

Unique Sink Orientations of Grids is in Unique End of Potential Line

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The complexity classes Unique End of Potential Line (UEOPL) and its promise version PUEOPL were introduced in 2018 by Fearnly et al. PUEOPL captures search problems where the instances are promised to have a unique solution. UEOPL captures total search versions of these promise problems. The promise problems can be made total by defining violations that are returned as a short certificate of an unfulfilled promise. GridUSO is the problem of finding the sink in a grid with a unique sink orientation. It was introduced by Gärtner et al. in 2008. We describe a promise preserving reduction from GridUSO to UniqueForwardEOPL, a UEOPL-complete problem. Thus, we show that GridUSO is in UEOPL and its promise version is in PUEOPL.

Joseph Doolittle