

Approximations of Directional Equilibrium Problems

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Abstract

We introduce the concept of a directional equilibrium problem, motivated by the fact that many mathematical concepts and problems have been studied in directional settings in the literature, while such an approach has not yet been considered for this important class of problems in applied mathematics.

Approximations of equilibrium models are naturally studied via variational convergence. Therefore, we propose several types of directional variational convergence and apply them to obtain global approximations of directional equilibrium problems, in the sense that the corresponding directional variational objects of approximating problems converge in norm to those of the original problem.

Our results are novel and are expected to pave the way for further research on important directional problems.