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**Fakultät für Mathematik**  
Oskar-Morgenstern-Platz 1  
A-1090 Vienna  
Austria

<https://owos.univie.ac.at>

## ONE WORLD OPTIMIZATION SEMINAR

January 17<sup>th</sup> 2022 @ 15:30 CET (Central European Time)

**YING CUI**

(University of Minnesota)

### **A Decomposition Algorithm for Two-Stage Stochastic Programs with Nonconvex Recourse**

**Abstract.** We study the decomposition methods for solving a class of nonconvex and nonsmooth two-stage stochastic programs, where both the objective and constraints of the second-stage problem are nonlinearly parameterized by the first-stage variable.

Due to the failure of the Clarke-regularity of the resulting nonconvex recourse function, classical decomposition approaches such as Benders decomposition and (augmented) Lagrangian-based algorithms cannot be directly generalized to solve such models. By exploring an implicitly convex-concave structure of the recourse function, we introduce a novel surrogate decomposition framework based on the so-called partial Moreau envelope. Convergence for both fixed scenarios and interior sampling strategy is established. Numerical experiments are conducted to demonstrate the effectiveness of the proposed algorithm.

*The link of the zoom-room of the meeting and the corresponding password will be announced the day before the talk on the mailing list of the seminar, to which one can subscribe on <https://owos.univie.ac.at>.*