

# Coupled task scheduling – minimizing the total completion time

Péter Györgyi<sup>a</sup>, David Fischer<sup>b</sup>

<sup>a</sup>HUN-REN SZTAKI, gyorgyi.peter@sztaki.hu

<sup>b</sup>TUHH, da.fischer@tuhh.de

Coupled task problem on a single machine consists of scheduling a set of jobs, where each job has two tasks. These tasks have to be scheduled so that no tasks overlap and the two tasks of a job are scheduled with exactly their given delay time in between them.

We focus on the minimization of the total completion time of the jobs. Recently, [1] drew an almost full complexity picture for these problems. In this talk, we will present approximation algorithms for several NP-hard variants based on the results of [2].

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## References

- [1] Bo Chen and Xiandong Zhang, Scheduling coupled tasks with exact delays for minimum total job completion time, *Journal of Scheduling*, 24, 209–221 (2021)
- [2] David Fischer and Péter Györgyi, Approximation algorithms for coupled task scheduling minimizing the sum of completion times, *Annals of Operations Research*, 328, 1387–1408 (2023)