**Low Complexity Scheduling Algorithm Minimizing the Energy for Tasks with Agreeable Deadlines**

### Type of talk

PhD Seminar

### Speaker

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### Abstract

Power management aims in reducing the energy consumed by computer systems while maintaining a good level of performance. One of the mechanisms used to save energy is the shut-down mechanism which puts the system into a sleep state when it is idle. No energy is consumed in this state, but a fixed amount of energy is required for a transition from the sleep state to the active state which is equal to L times the energy required for the execution of a unit-time task. In this paper, we focus on the off-line version of this problem where a set of unit-time tasks with release dates and deadlines have to be scheduled in order to minimize the overall consumed energy during the idle periods of the schedule. Here we focus on the case where the tasks have agreeable deadlines. For the single processor case, an $O(n^3)$ algorithm has been proposed in [7] for unit-time tasks and arbitrary L. We improve this result by introducing a new $O(n^2)$ polynomial-time algorithm for tasks with arbitrary processing times and arbitrary L. For the multiprocessor case we also improve the complexity from $O(n^3m^2)$ [7] to $O(n^2m)$ in the case of unit-time tasks and unit L.

## Reference

E. Angel, E. Bampis, V. Chau: Low Complexity Scheduling Algorithm Minimizing the Energy for Tasks with Agreeable Deadlines. LATIN 2012, LNCS 7256, p13-24