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**Job shop scheduling by simulated annealing.** (English) [Zbl 0751.90039](#)

*Oper. Res.* 40, No. 1, 113-125 (1992).

**Summary:** We describe an approximation algorithm for the problem of finding the minimum makespan in a job shop. The algorithm is based on simulated annealing, a generalization of the well-known iterative improvement approach to combinatorial optimization problems. The generalization involves the acceptance of cost-increasing transitions with a nonzero probability to avoid getting stuck in local minima. We prove that our algorithm asymptotically converges in probability to a globally minimal solution, despite the fact that the Markov chains generated by the algorithm are generally not irreducible. Computational experiments show that our algorithm can find shorter makespans than two recent approximation approaches that are more tailored to the job shop scheduling problem. This is, however, at the cost of large running times.

**MSC:**

[90B35](#) Deterministic scheduling theory in operations research

[90-08](#) Computational methods for problems pertaining to operations research and mathematical programming

[90C27](#) Combinatorial optimization

Cited in **153** Documents

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[approximation algorithm](#); [minimum makespan](#); [job shop](#); [simulated annealing](#)

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