

1056-68-908

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Tempe, AZ 85287. *Distributed algorithms and graph theory.*

In this talk we will discuss connections between graph theory and the theory of distributed algorithms. We will focus on two classes of graphs, planar graphs and graphs of bounded arboricity, and analyze the distributed complexity of some of the classical optimization problems. Among other result we indicate how to use graph-theoretic tools, like Ramsey theory, to obtain lower bounds for distributed complexity of some problems. (Received September 18, 2009)