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**Average consensus in networks of dynamic agents with switching topologies and multiple time-varying delays.** (English) [Zbl 1133.68412](#)

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**Summary:** We discuss average consensus problem in undirected networks of dynamic agents with fixed and switching topologies as well as multiple time-varying communication delays. By employing a linear matrix inequality method, we prove that all the nodes in the network achieve average consensus asymptotically for appropriate communication delays if the network topology is connected. Particularly, several feasible linear matrix inequalities are established to determine the maximal allowable upper bound of time-varying communication delays. Numerical examples are given to demonstrate the effectiveness and the sharpness of the theoretical results.

**MSC:**

**68T05** Learning and adaptive systems in artificial intelligence

Cited in **114** Documents

**Keywords:**

multiagent system; undirected network; linear matrix inequality; average consensus; switching topology

**Software:**

LMI toolbox

**Full Text:** [DOI](#)

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