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**Observer-based adaptive consensus control for multi-agent systems.** (Chinese. English summary) [Zbl 1449.93239](#)

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Summary: For high-order multi-agent systems with nonlinear dynamics, consensus algorithms and adaptive laws based on observer mechanism are proposed in the paper. Additionally, history information of agent's states is added in consensus algorithms. Furthermore, parameter gains are decided by adaptive control laws. By applying the Lyapunov function, stability theory, graph theory and linear matrix inequalities techniques, sufficient consensus conditions for multi-agent systems are obtained. Finally, results of numerical examples are used to verify the effectiveness of the proposed algorithms.

**MSC:**

**93D50** Consensus

**93B53** Observers

**93C40** Adaptive control/observation systems

**93A16** Multi-agent systems

**Keywords:**

multi-agent systems; adaptive control; consensus

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