学 术 报 告

ACADEMIC LECTURE

题目: **Cyber Physical Systems Theory and Cooperative Exploration**

时间: **2009年12月11日 星期五 下午2: 30**

地点: **信电楼215会议室（图书馆左侧上行）**

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摘要

One objective of cyber-physical systems theory is to develop new scientific and engineering principles, algorithms and models for systems whose computational substrates include high-performance embedded systems. One approach is to co-design control tasks and real-time scheduling algorithms that guarantee performance and meet criteria for energy constraints. The controller and scheduler are integrated with battery management algorithms through a systems theory approach so that the methods are provably correct with justifiable performance. Cyber physical systems theory is valuable for cooperative exploration missions where robotic sensor platforms are utilized to cooperatively investigate an area of interests. Each robot is constrained by battery life and computing resources, yet intelligent control and sensing algorithms are required to create meaningful exploratory behaviors. Recent theoretical, simulation and experimental results will be demonstrated.