



Graduate Summer School: **Games and Contracts for Cyber-Physical Security**

July 7-23, 2015

Organizing Committee

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Scientific Overview

This summer school will provide an advanced introduction on how the mathematical tools of game theory can be applied to improve the resilience (security and reliability) of cyber physical systems (CPS) that control critical national infrastructures, such as our electricity, water, and transportation networks. The operations of such CPS are driven by actions of many human decision makers who need to make decisions based on limited information. In addition, these humans frequently have conflicting objectives, which make them reluctant to share even partial information with others. Game-theoretic tools allow analyzing strategic behavior of the entities upon whose choices the CPS operations depend.

The first two weeks will provide an overview of the relevant mathematical tools of game and contract theory, and an outline of the incentive theory framework. The third week will give applications of game theory tools to improving CPS security in various infrastructure domains.

Participation

The summer school will provide a rare opportunity for researchers in mathematics, computer science, engineering, and related sciences to learn about recent research directions and future challenges in this area. Funding is available to support graduate students and postdoctoral researchers in the early stages of their career, as well as more senior researchers interested in undertaking new research in this area. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications. The application is available online, and is due March 31, 2015.

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