



**International Federation
of Automatic Control**

**lädt am
Donnerstag, den 24. April, 2014
16.15 s.t.**

**in den
Hörsaal EI 9 Hlawka HS, Elektrotechnisches
Institutsgebäude, Raum Nr. CAEG17
TU Vienna, Gusshausstraße 27 - 29,
1040 Wien
(Erdgeschoss)**

zum Vortrag

**Cyber-security of SCADA systems:
A case study on Automatic Generation Control**

es spricht

**Univ. Prof. John Lygeros
IFAC Treasurer**

**Um Anmeldung wird gebeten:
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Abstract

Cyber-security issues in SCADA systems have concentrated considerable attention, due in part to highly publicized security threats such as the STUXNET computer worm. The research presented in this talk is motivated by security issues for SCADA systems used to monitor and control the power transmission grid. We specifically concentrate on the implications and possible countermeasures of attacks on the Automatic Generation Control (AGC) system, one of the few control loops closed over such SCADA systems without the intervention of human operators. We show how an attacker who gains access to the AGC signal of the SCADA system in one control area can robustly destabilize the transmission system. We then proceed to design countermeasures against such attacks. To this end, we develop a novel fault detection/isolation filter applicable to high dimensional nonlinear systems, based on randomized optimization methods.

Joint research with G. Andersson, K. Margellos, P. Mohajerin, and M. Vrakopoulou.

Programm:

- 16.15 s.t.** **Einführende Worte**
Univ. Prof. Kurt Schlacher
Sekretär der IFAC
- 16.30** **Cyber-security of SCADA systems:**
A case study on Automatic Generation
Control
- Vortragender:**
Univ. Prof. John Lygeros
IFAC Treasurer
Professor and Head
Automatic Control Laboratory
ETH Zürich
- 17.30** **Diskussion**
Moderation
Univ. Prof. Kurt Schlacher