

Special Session title

Control, Communication and Emerging Technologies in Smart Rail Systems

Special Session proposer(s)

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Abstract

Rail transport networks are now reaching an important development stage worldwide. High-speed rail transport systems have achieved significant development in Europe and Asia and are beginning to become popular in many countries. Metropolitan transport will have an increasing importance in the coming years to reduce pollution and congestion in cities. Both metropolitan and high speed railways require the use of advanced signaling and control systems to guarantee and optimize their operation. For these reasons it is necessary to use modern communication and signaling systems for the intelligent control of these railways. In addition, the railway infrastructures use many supplementary systems such as remote control, video surveillance, obstacle detection and operating aids that require the intensive use of information and communication technologies. In all cases the electrical and electronics equipment must have a high quality of service, reliability and availability to fulfill railway requirements.

The aim of this special issue is to present a collection of high-quality research papers on recent developments, current research challenges and future directions in the use of control, communications, and emerging technologies to realize smart rail systems that are safer, and more efficient. We are soliciting original contributions that have not been published and are not currently under consideration by any other journals. The topics of interest include, but are not limited to:

- Energy efficiency and sustainability of public transportation
- Rail system modeling and optimization
- Architectures, algorithms and protocols for data dissemination, processing, and aggregation for smart rail systems
- Networked information processing, decision making, and intelligent control
- Railway communications and networking
- Wireless technologies for smart rail systems
- Applications and services for smart rail systems
- Security, privacy, and dependability in smart rail systems
- Results from experimental systems, testbeds, and pilot studies
- Intelligent transportation, rail traffic modeling, decentralized congestion control

Keywords

- Communications and Protocols in ITS
- Transportation Security
- ITS Field Tests and Implementation

Topics of interest

- Energy efficiency and sustainability of public transportation



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