



6G Empowered Intelligent High-Speed Railway

SPEAKER Prof. Bo Ai

Professor
School of Electronic and Information
Engineering,
Beijing Jiaotong University

DATE 29 Jul, 2025 (Tue)

TIME 10:30 AM - 12:00 PM

VENUE G7315, 7th Floor, Green Zone, Yeung Kin
Man Academic Building, City University
of Hong Kong, 83 Tat Chee Avenue,
Kowloon Tong

ABSTRACT

The rapid development of high-speed railways (HSRs) has become a cornerstone of intelligent transportation systems. As HSR networks advance in speed, complexity, and scale, they impose increasingly stringent demands on next-generation communication systems—particularly in terms of reliability, latency, bandwidth, and security. This talk presents an in-depth analysis of the requirements for future intelligent HSR systems and examines how emerging 6G technologies can address these challenges. We begin with an overview of global HSR development and the growing demand for intelligent, safe, and autonomous operations. Key enabling technologies such as cross-domain channel modeling, advanced wireless coverage, ultra-reliable transmission, edge intelligence, and AI-driven security are discussed. These innovations in 6G help to significantly enhance the efficiency, safety, and intelligence of next-generation HSR networks, laying the groundwork for future high mobility infrastructure.

BIOGRAPHY

Prof. Bo Ai (IEEE Fellow, AAIA Fellow, IET Fellow, professor and doctoral supervisor of Beijing Jiaotong University. He is the Dean of School of Electronic and Information Engineering.

Prof. Bo Ai has published 6 Chinese academic books, 3 English books, over 180 IEEE journal articles. He has obtained 13 international paper awards include IEEE VTS Neil Shepherd Memorial Best Propagation Award and IEEE GLOBECOM 2018 Best Paper Award · 43 invention patents; 32 proposals adopted by the ITU, 3GPP, etc., and 9 provincial and ministerial-level science and technology awards. His research results has been involved in 6 national standards. He is mainly engaged in the research and application of the theory and core technology of broadband mobile communication and rail transit dedicated mobile communication systems (GSM-R, LTE-R, 5G/6G-R, LTE-M).

Prof. Bo Ai is the Fellow of Chinese Institute of Electronics, Fellow of China Institute of Communications, Chair of IEEE BTS Xi'an Branch, Vice Chair of IEEE VTS Beijing Branch, IEEE VTS distinguished lecturer, am expert of the 5G Industry Expert Group of the China Mobile Group Technical Advisory Committee · and expert of the 6G Group in China.

All are welcome!



In case of questions, please contact Prof SONG Linqi at linqi.song@cityu.edu.hk, or visit the CS Departmental Seminar Web at <https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums>.