DISTINGUISHED LECTURE SERIES

Positioning for the Future

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ABSTRACT

Global Navigation Satellite Systems (GNSSs) have revolutionised Positioning, Navigation, Timing and Atmospheric Sensing. Despite these tremendous achievements, important challenges remain, with new opportunities arising. In this presentation, after a brief review is given of the current state of positioning technology, a selection is given of the exciting challenges and opportunities that lie ahead of us. These concern the design of new GNSS constellations, the exploitation of terrestrial and space signals of opportunities, and the importance of GNSS integrity, in particular for liability-critical and safety-critical applications. In order to tackle GNSS integrity proper, important theoretical work still needs to be done. These challenges will be highlighted, in particular with a focus on interferometric mixed-integer models and the integrity description of positioning and deformation monitoring. These topics represent samples of fertile grounds for the typical researcher (PhD student and Postdoc alike) interested in the theory of geodetic data processing and modelling, and eager to take up a difficult challenge and/or looking for research opportunities that can make a difference.

BIOGRAPHY

Peter Teunissen is Professor of Geodesy at Delft University of Technology, Vice-President of the IAG, an elected member of the Royal Netherlands Academy of Arts and Sciences, and founding Editor-in-Chief of IAG's Journal of Geodesy. He has been research-active in various fields of Geodesy, with contributions ranging from new geodetic theory (mixed-integer model estimation, quality control and DIA reliability theory) to breakthrough innovations in satellite navigation and geospatial infrastructure disciplines (LAMBDA method, multi-GNSS PPP-RTK and the early characterization of the Chinese BeiDou, the Indian IRNSS, and the Russian GLONASS CDMA system). His scientific contributions have been recognized through various awards, including the IAG Bomford Prize, the ION Kepler Award, EGU's Vening-Meinesz Medal and he is an elected Fellow of IUGG, IAG, UK-RIN, and USA-ION. He has authored numerous journal papers and textbooks, and he is on the Editorial Board of several peer-reviewed journals. With Springer, he published the Handbook of GNSS (Teunissen/Montenbrück) and GPS for Geodesy (2nd Ed. Teunissen/Kleusberg), and he published the books Adjustment Theory (2nd Ed.), Testing Theory (3rd Ed.), Dynamic Data Processing (2nd Ed.) and Network Quality Control (2nd Ed.) with TU Delft Open Publishing.

Moderator: Prof. Wu CHEN, Head (LSGI)

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