# 学 术 报 告

## ACADEMIC LECTURE

**题目：Beyond Bandwidth: Phase-Coherent Distributed ISAC for 6G Positioning, Sensing, and Imaging**

**时间：2026年07月20日, 10:00-11:30**

**地点：玉泉校区高分子楼A201会议室**

**报告人：Prof. Henk Wymeersch**

**邀请人：张朝阳 教授**

## Abstract

High-resolution positioning and sensing has traditionally been driven by bandwidth. Many 6G deployments, however, will operate well below bandwidth-rich mmWave and sub-THz bands, making classical delay-resolution arguments insufficient. This talk presents a complementary approach: phase-coherent processing across distributed infrastructure, creating a virtual aperture. Building on cell-free massive MIMO and distributed radar, we outline coherent multi-node fusion and its gains for localization accuracy, detection sensitivity, and imaging resolution in ISAC. We compare coherent and non-coherent fusion, identify regimes where each is preferable, and explain trade-offs among bandwidth, aperture, geometry, and coherence time. We conclude with key practical challenges (calibration, synchronization, modeling, and deployment optimization) and a roadmap toward robust phase-coherent ISAC in 6G.

## Biography

Henk Wymeersch (IEEE Fellow, 2024) is Professor of Communication Systems in the Department of Electrical Engineering at Chalmers University of Technology, Sweden, and a Distinguished Visiting Professor at Tsinghua University, China. He received the Ph.D. degree in Electrical Engineering/Applied Sciences from Ghent University, Belgium (2005), and was a postdoctoral researcher with the Laboratory for Information and Decision Systems at MIT (2005–2009). He has served in editorial roles for IEEE Communications Letters, IEEE Transactions on Wireless Communications, and IEEE Transactions on Communications, and is currently on the editorial board of IEEE Signal Processing Magazine. He was an IEEE Vehicular Technology Society Distinguished Lecturer (2019–2021). He leads the CROSSNET group at Chalmers, advancing wireless communication technologies through the lens of positioning and sensing.