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## Gastvortrag

# Urban Remote Sensing Systems, in the era of climate change

V. Chandrasekar, University Distinguished Professor, Colorado State University

**Mittwoch, 29. Mai 2019, 13:00 Uhr**

**Seminarraum HF01092, Inffeldgasse 12, 1. Stock**

### Abstract:

Today's weather remote sensing and warning systems utilize data from high-power, long-range radars that have limited ability to observe the lower part of the atmosphere because of the Earth's curvature. This means that meteorological conditions in the lower troposphere are under-sampled, leaving us with precious little predicting and detecting capability where most weather forms. CASA systems were introduced to overcome the effects of the Earth's curvature and obstructions such as mountains and buildings by deploying low-cost networks of dual-polarization/Doppler radars that operate at short range. Installed on existing rooftops and cell towers just short distance apart, these small radars will communicate with one another and adjust their sensing modes in response to quickly changing weather and user needs - a dramatic change from current technologies. Up-to-the-second radar information will then be transmitted to the people and organizations that make critical decisions. CASA, the Center for Collaborative Adaptive Sensing of the Atmosphere, was established in as a prestigious National Science Foundation Engineering Center with federal, university, industry, and local government funding to support this effort.

The center operates a radar network for urban weather disaster detection and mitigation, in DFW with the goal of tracking and warning of hails, tornadoes, and floods. Particularly, an overview of the radar network is presented. The architecture and associated algorithms for various product systems are described, including the real-time hail detection system, the multiple Doppler vector wind retrieval system, and the high-resolution quantitative precipitation estimation system. Sample products in the presence of high wind, tornado, hail, and flash flood are provided, and the systems' performance is demonstrated through cross validation with ground observations and weather reports.

### Bio:

Prof V. Chandrasekar currently serves as the University Distinguished professor at Colorado State University, with Honorary Distinguished Chair professor Tiles in many universities, including University of Helsinki, Indian Institute of Technology, Kharagpur, and IISc Bangalore. He got his B Tech from IIT Kharagur and PhD from Colorado State University. He is an author of two text books, five general purpose books. He is elected Fellow of both Science and Engineering societies including IEEE, American Meteorological Society, Union of Radio Science (URSI), and NOAA – CIRA. He also has been given numerous awards including IEEE education award, IEEE Remote Sensing Society Distinguished Achievement Award, NASA Technical Achievement award as well as, University Outstanding Researcher award and Outstanding Advisor Award. He was knighted by the Government of Finland for discoveries leading to remote monitoring of the fragile arctic systems. He has supervised over 40 PhD and equal number of MS students.