

# **The Chinese Phased Array Incoherent Scatter Radar Systems for Continuous Sounding the Earth's Ionosphere**

Ming Yao<sup>(1)</sup>, Xiaohua Deng<sup>(1)</sup>, and Erhan Kudeki<sup>(2)</sup>

(1) Nanchang University, Nanchang, Jiangxi, China

(2) University of Illinois at Urbana-Champaign, Urbana-Champaign, IL

The incoherent scatter radar (ISR) is the only ground based instrument, which can detect the space plasma parameters from tens to thousands of kilometers height above the earth, especially the ionosphere. This paper introduces the design concept of phased array ISR systems, including the prototype system and the future big ISR system in Sanya. Sanya ISR can continuously probe the real time plasma parameters in the whole ionosphere range (80-1000 Km). By choosing the appropriate system parameters, the total cost of the system is controllable. Successful development of the system will fundamentally resolve the problem of continuous measuring the ionospheric electric field in the geophysics world.