

## **Statistical evaluation of time multiplexing approach to suppress coupling in the polarimetric radar**

Igor Ivic

The University of Oklahoma/NSSL, Norman, OK, USA

*E-mail: igor.ivic@noaa.gov*

The next step in the evolution of weather observations is the adoption of phased array technology. It provides for electronic beam steering which enables simultaneous survey of the atmosphere while detecting and tracking aircraft. One of the main challenges to the use of phased array technology for weather observations is the implementation of dual-polarization with acceptable isolation between orthogonal channels. Simulations and measurements on phased array antennas imply that such isolation cannot be achieved only by antenna hardware. Hence, additional modulations to radar system are required to attain supplementary isolation between orthogonal channels. One possible alternative is time-multiplexing in which the vertical transmitter port is energized immediately after the horizontal port or vice versa. The statistical aspects of this approach are investigated herein. Framework for the approach is given and challenges are highlighted.