

# SEMINAR NOTICE

*Department of Physics and Engineering Physics  
University of Saskatchewan*

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**SPEAKER:** Mehdi Ghalamkarian Nejad, PhD Candidate  
Physics and Engineering Physics

**TOPIC:** *Study of Ionospheric Plasma Flow Measurements with SuperDARN and RISR radars*

**DATE:** Tuesday February 4th, 2025

**TIME:** 3:30-4:30 p.m.

**PLACE:** *Physics 103*

**Abstract:**

This presentation explores advancements in measuring and interpreting ionospheric plasma flows using the SuperDARN and RISR radars. The work focuses on improving the accuracy of SuperDARN velocity measurements by addressing geolocation and velocity correction challenges for 1½-hop propagation signals. Traditional geolocation methods, which rely on fixed virtual heights, are compared with a novel elevation-angle-based approach. This method calculates more accurate ground ranges by incorporating variable virtual heights derived from elevation angle data.

Additionally, two velocity correction methods are assessed: one using electron density peak values from RISR and the other utilizing elevation angle data solely from SuperDARN. The results demonstrate that corrections based on elevation angle improve the consistency of SuperDARN's velocity measurements with RISR's line-of-sight plasma drifts. These findings highlight the potential for elevation angle data to provide a self-contained, robust solution for geolocation and velocity adjustments, enhancing the reliability of SuperDARN measurements for studying ionospheric plasma dynamics.

Coffee and Cookies will be available in Phys 177 at 3:00pm for those attending the seminar.