



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 2527 Type: **Oral Competition (Undergraduate Student) / Compétition orale (Étudiant(e) du 1er cycle)**

## Anomalous transport property in $\text{Re}_3\text{Ge}_7$

*Monday 3 June 2019 13:30 (15 minutes)*

The rhenium (Re)-based compounds are difficult to synthesize owing to the element's high melting temperature and low solubility into solid solution. In this talk, we will present an anomalous transport property observed in single crystal  $\text{Re}_3\text{Ge}_7$ . In zero field, the temperature dependence of electrical resistivity sharply increases below a phase transition temperature  $T_c = 58.5$  K, showing a metal-to-insulator-like transition. Analysis of the Hall coefficient measurements indicates that the carrier density is 0.04 per formula unit at 300 K and drops by two orders of magnitude below  $T_c$ . When magnetic field is applied, the temperature dependence of resistivity develops a maximum around 30 K, deviating from an ordinary metallic behaviour. At low temperatures, the Shubnikov-de Haas quantum oscillations are detected on top of the linear field dependence of magnetoresistance.

**Author:** RABUS, Anja (Simon Fraser University)

**Co-author:** MUN, Eundeok

**Presenter:** RABUS, Anja (Simon Fraser University)

**Session Classification:** M2-9 Magnetism and heavy fermions II (DCMMP) | Magnétisme et fermions lourds II DPMCM

**Track Classification:** Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)