Contribution ID: **1269** Type: **Oral (Student, In Competition) / Orale (Étudiant(e), inscrit à la compétition)**

Detection of hydrogen in steel with an N-15 nuclear resonance

Wednesday 15 June 2016 14:15 (15 minutes)

We have used a 6.38 MeV N-15 nuclear resonance to detect hydrogen in steel that had been electroplated with a protective Cd surface coating. With the sample maintained at room temperature, we observed a rapid decline in hydrogen concentration during the measurement, indicative of beam-induced hydrogen detrapping and mobility. It appears that the hydrogen concentration falls off as a simple exponential decay with ion fluence, however it settles at a finite hydrogen concentration different from 0. In spite of the hydrogen loss, we have been able to detect small concentrations of hydrogen which has diffused into the bulk of the steel sample. We also studied in more detail the temperature dependence and aysmptotic behaviour of the hydrogen loss and will report on these studies.

Author: LAROCHELLE, Jean-Simon (Université de Montréal)

Co-authors: DESILETS-BENOIT, Alexandre (Université de Montréal); ROORDA, Sjoerd (Université de Montréal)

Presenter: LAROCHELLE, Jean-Simon (Université de Montréal)

Session Classification: W2-5 Thin Films II (DCMMP-DSS) / Couches minces II (DPMCM-DSS)

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