



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 2157 Type: **Poster (Graduate Student) / Affiche (Étudiant(e) du 2e ou 3e cycle)**

## **POS-4 Relativistic corrections to nonrelativistic electric dipole transitions in heliumlike atoms**

*Tuesday 12 June 2018 18:06 (2 minutes)*

Radiative transition probabilities in atoms are normally calculated from nonrelativistic wave functions and the electric dipole transition operator.

The theory of relativistic corrections to nonrelativistic energies is well established in terms of the Breit interaction, but the same is not true for relativistic corrections to transition probabilities.

Our objectives are first, to start from operators derived from quantum electrodynamics for the lowest-order relativistic corrections and verify that they yield the same results as from solutions to the Dirac equation for the case of hydrogen. And second, apply the same operators (including two-electron corrections) to the case of electric dipole transitions in heliumlike ions. In both cases, relativistic corrections become increasingly important with increasing nuclear charge.

**Authors:** Mr VENN, Daniel (University of Windsor); Dr DRAKE, Gordon (University of Windsor)

**Presenter:** Mr VENN, Daniel (University of Windsor)

**Session Classification:** DAMOPC Poster Session & Finals: Poster Competition and Mingle Session with Industry Partners (8) / Employers | Session d'affiches DPAMPC et finales: Concours d'affiches et rencontres avec partenaires industriels et employeurs (8)

**Track Classification:** Division of Atomic, Molecular and Optical Physics, Canada / Division de la physique atomique, moléculaire et photonique, Canada (DAMOPC-DPAMPC)