Canadian Association of Physicists

Association canadienne des physiciens et physiciennes

Contribution ID: **203** Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) The fast and the furious: special relativity for high school students

Wednesday, 9 June 2021 15:45 (30 minutes)

One of the problems educators often confront is the lack of preparedness and engagement of physics students as they enter university. Two potential causes are 1) some students think physics is about tedious descriptions of balls rolling down ramps, 2) students may have no motivation for learning algebra. Special relativity (SR) is no weirder for high school students than for university students (or faculty for that matter) and perhaps less so in that high school students have not yet been fully indoctrinated into the Newtonian paradigm. Doing problems in SR requires only high school algebra. Introducing SR at the high school level may address the two issues mentioned above by 1) getting students excited about the weirdness of physics, and 2) providing an exciting new arena in which algebra is useful. In this talk I will first show how to use simple thought experiments (and a bit of algebra) to derive from first principles SR and its main consequences. Time permitting, I will present a couple of simple but intriguing and/or relevant examples that students can tackle.

Primary author: KUNSTATTER, Gabor (University of Winnipeg)

Presenter: KUNSTATTER, Gabor (University of Winnipeg)

Session Classification: W3-3 High School Physics (DPE) / Physique du secondaire (DEP)

Track Classification: Physics Education / Enseignement de la physique (DPE-DEP)