



Contribution ID: 183

Type: Oral presentation

God plays quantum dice –teaching bosons and fermions to high school students

Tuesday 1 July 2025 16:10 (20 minutes)

We present here a teaching unit about bosons and fermions adapted for high school. Despite the importance of the topic as a gateway to many-particle physics, it is absent from most high school curricula and most research on the subject. A teaching unit is presented, and initial findings supporting its adaptation to high school are presented.

Education level

Age 15-18 (Secondary education)

Physics topic

Quantum mechanics

Research focus

Student conceptions / Preconceptions / Misconceptions

Research method

Educational design research (Qualitative research)

Organizing preference criteria

Authors: Dr WEISSMAN, Efraim Yehuda (Jerusalem College of Technology); WHITE, Yhonatan (Tel Aviv University, Tel Aviv, Israel); Dr MERZEL, Avraham (The Seymour Fox School of Education, The Hebrew University of Jerusalem, Jerusalem, Israel)

Presenter: Dr WEISSMAN, Efraim Yehuda (Jerusalem College of Technology)

Session Classification: Parallel oral presentations

Track Classification: Quantum education (QUANT)