PARTICLE PHYSICS AND ITS APPLICATIONS IN SCHOOLS

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BACKGROUND AND AIMS

"The learning experiences of physics students are more authentic and more engaging if they explore the science of the last 50 years, including the active field of particle physics" (Pritchard et al., 2009). Decision-makers have recognised the need to connect the physics taught at school, universities and research institutes. Lazzeroni et al. (2021) recognised the value of adding particle physics to the school curriculum to increase student's engagement, which is one of the important factors for their learning (Bhansali & Sharma, 2020).

EXPERIEMENT DESIGN

I constructed 'intervention' experiments making use of particle physics concepts on friction, phases, pressure and waves. These were guided inquiry experiments with clear instructions. Students were explicitly asked to discuss, analyze and interpret. The experiments consisted of three-part activities that built the concepts in students' minds. I also intrigued students with real life scenarios and applications related to the concept of the experiment. In this presentation, I will elaborate on these experiments for researchers and practitioners.

FINDINGS

I was a teacher as well as an observer during the sessions with the students. My preliminary results indicate that students were engaged in hands-on activities. Students found it interesting to go into depth using the materials around them and learn physics topics with a lens of particle physics.

IMPLICATIONS

My study shows that inclusion of particle physics experiments, while introducing topics to school students, results in improved conceptual understanding and engagement.

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