



Contribution ID: 75

Type: not specified

PER me si va ne la fisica recente - An Educational Particle Escape Room (PER) Towards the Discovery of the Standard Model of Particles

We present “PER me si va ne la fisica recente”, an educational escape room on particle physics designed by the Physics4Teenagers group to introduce secondary school students to concepts rarely addressed in formal curricula. The activity combines content-driven puzzles, narrative engagement, and structured debriefing, and has become a permanent installation at UniPV and INFN.

The research study, based on pre-/post-tests, involved 232 students. The assessment focused on both curricular and extra-curricular concepts, as well as on the persistence of common misconceptions. The results confirm that even short interventions can lead to measurable improvements in understanding, although some misconceptions remain particularly resilient.

This work demonstrates that a low-cost, replicable escape room can effectively engage students with frontier physics and complement classroom teaching. It also highlights the importance of targeted debriefing in addressing persistent misconceptions, contributing to the growing body of evidence on the value of game-based strategies in STEM education.

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Session Classification: Caffè e poster (dal N. 9 al N. 51)