



Contribution ID: 396

Type: **Parallel talk**

Antimatter in High Schools

Friday 12 July 2019 16:45 (15 minutes)

In the context of a national general public event on antimatter (called Nuit de l'antimatière, <https://www.sfpnet.fr/nuit-de-l-antimatiere>) that has been organized under the aegis of CNRS (French National Center for Scientific Research), SFP (French Physical Society) and CEA (French Alternative Energies and Atomic Energy Commission), we initiated a pedagogical project to visit high schools with an antimatter detection setup. Over the first half of 2019, we had the opportunity to deliver these lectures in 20 high schools, located in the French region Auvergne-Rhône-Alpes. The setup consisted of two gamma ray NaI detectors recording positron-electron annihilations originating from a ^{22}Na source. The whole device was made easily portable and did not require any particular transportation authorization from the French Nuclear Safety Agency (ASN) (^{22}Na activity $< 1 \text{ MBq}$). The experiment and the pedagogical material accompanying the interventions were prepared in a language adapted to the physics program of the final two years of high school in France. This class provided a perfectly suitable pedagogical tool to experimentally touch upon several notions of radioactivity, relativity, particle physics, quantum mechanics, collision kinematics, as well as the principle of positron emission tomography. An outlook on contemporary research activities on antimatter at CERN as well as in cosmology and astrophysics was a natural extension, arousing further interest from the students. The speaker will briefly describe the experiment and the subjects covered during the lectures, and present the perspectives for extending the initiative to more participants at the national and international level.

Author: COLLOT, Johann (university Grenoble Alpes (FR))

Co-authors: CLÉMENT, Benoit; Ms PÉRIGOIS, Carole (LAPP); FURGET, Christophe (Centre National de la Recherche Scientifique (FR)); Mr GALLOT, Laurent (LAPTh); REBOUD, Meril (Centre National de la Recherche Scientifique (FR)); DEL AMO SANCHEZ, Pablo (LAPP - Université de Savoie - IN2P3 - CNRS); SERPICO, Pasquale (LAPTh - CNRS & Univ. Savoie (FR)); GHEZ, Philippe (Centre National de la Recherche Scientifique (FR)); KARYOTAKIS, Yannis (LAPP CNRS/IN2P3)

Presenter: COLLOT, Johann (university Grenoble Alpes (FR))

Session Classification: Outreach, Education, and Diversity

Track Classification: Outreach, Education, and Diversity