

# The online laboratories for OCRA - Outreach Cosmic Ray Activities INFN project

Tuesday, July 13, 2021 12:48 PM (12 minutes)

OCRA – Outreach Cosmic Ray Activities was born in 2018 as a national outreach project of INFN with the aim of collecting, within a national framework, the numerous public engagement activities in the field of cosmic ray physics already present at a local level in the divisions and laboratories. Since spring of 2020 OCRA offers also a series of online laboratories on its website <https://web.infn.it/OCRA/>, designed not only to be used by students individually but also to be offered in the classroom by teachers.

The cosmic rays path present on the website will be presented together with the online laboratories on the measurement of muons, from the one related to the dependence on the zenith angle made during the International Cosmic Day up to measurements of the flux dependency on the altitude in the atmosphere and in the water. Also, a laboratory allowing to analyze public data of the Pierre Auger Observatory will be presented. In addition, some teaching methods included in the “Teachers’ area” of the OCRA website will be described. The developed cosmic ray path was also used to organize an online course for teachers of Italian high schools with the purpose of accompanying teachers when approaching the subject for the first time. About 70 teachers participated for a total of 9 lessons.

## Keywords

online, didactics, cosmic ray, muons

## Collaboration

other (fill field below)

## other Collaboration

OCRA

## Subcategory

Outreach and Education

**Primary authors:** Dr ARAMO, Carla (INFN Napoli); Dr ANTOLINI, Roberta (LNGS - INFN); BOCCI, Valerio; BUSCEMI, Mario; CACCIANIGA, Lorenzo; Dr CANDELA, Attanasio (LNGS - INFN); CATALDI, Gabriella (INFN Lecce); COLALILLO, Roberta (INFN - Sezione di Napoli); Dr CONVENGA, Fabio (INFN - Lecce); Dr COLUCCIA, Maria Rita (INFN - Lecce); DE PALMA, Francesco; Dr DI NEZZA, Pasquale (LNF - INFN); DI SCIASCIO, Giuseppe (INFN - Roma Tor Vergata); EVOLI, Carmelo; Dr GALBATO, Gabriele (Dip. Fisica, Università La Sapienza - Roma); GIAMPAOLI, Alessia (Gran Sasso National Laboratory - INFN); HEMMER, Sabine (INFN); Dr IACOANGELI, Francesco (INFN - Roma La Sapienza); Prof. LIGUORI, Domenico (INFN - Cosenza); MIOZZI, Silvia (INFN Roma Tor Vergata); PAOLETTI, Riccardo; Dr ROSSI, Nicola (LNGS - INFN); ROZZA, Davide (University of Sassari and INFN-LNS); SCHIOPPA, Marco; Dr VERONESI, Ilaria (INFN - Napoli, Università di Salerno)

**Co-author:** OCRA COLLABORATION (<https://web.infn.it/OCRA/collaborazione/>)

**Presenter:** Dr ARAMO, Carla (INFN Napoli)

**Session Classification:** Discussion

**Track Classification:** Outreach and Education: O & E | Outreach and Education