

PER²APS²
UGIA⁰ADVANCED⁴
PHYSICS²SEMINARS⁴

GIOVEDÌ
10 OTTOBRE

ORE 15:00 - AULA BENEDETTO DE TOLLIS



Observation of the $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ decay and
measurement of its branching ratio
Francesco Brizioli



A new measurement of the $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ decay by the NA62 experiment at the CERN SPS is presented, using data collected in 2021 and 2022. This new data-set was collected after modifications to the beamline and detectors and at a higher instantaneous beam intensity, with respect to the previous 2016-2018 data taking. Using the NA62 data-set from 2016-2022, a new measurement of $\mathcal{B}(K^+ \rightarrow \pi^+ \nu \bar{\nu}) = (13.0^{+3.3}_{-2.9}) \times 10^{-11}$ is reported, and for the first time the $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ decay is observed with a significance exceeding 5σ .