Contribution ID: **19** Type: **not specified**

Italian Physicists and Old Quantum Mechanics: the Case of Antonio Garbasso and Antonino Lo Surdo

Wednesday 10 December 2025 12:10 (20 minutes)

As part of a project by the Italian Physical Society (SIF), inspired by the centenary of quantum mechanics and the International Year of Quantum Science and Technology (IYQ), this talk will revisit the work of Italian physicists Antonio Garbasso and Antonino Lo Surdo, who are credited with introducing quantum mechanics to Italy. In late 1913, Garbasso adopted Bohr's 1913 theory of atomic structure to explain the recently discovered effect of electric fields on spectral lines–an effect discovered independently by Johannes Stark and Antonino Lo Surdo. This effect, which represents an interesting case study of both an almost simultaneous experimental discovery and an independent theoretical interpretation of the same phenomenon, became known as the "Stark effect", but in Italy it was often referred to as the "Stark-Lo Surdo phenomenon". In this talk, we will address both the experimental and theoretical aspects of this case study. On the experimental side, we will compare the different approaches adopted by Lo Surdo and Stark and the results they obtained, with particular emphasis on Lo Surdo's discovery of the differing behaviour of spectral lines within the same series. On the theoretical side, we will compare the formulations proposed by Garbasso and Bohr to explain this quantum effect, highlighting similarities and differences.

Authors: LEONE, Matteo; ROBOTTI, Nadia

Presenters: LEONE, Matteo; ROBOTTI, Nadia

Session Classification: Communications III - Quantum physics and quantum mechanics in Italy