

# **Nuclei: From Fundamental Interactions to Structure and Stars**

## Spectroscopy with the AGATA position sensitive detector array

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Nuclear physics research is at the dawn of a new era. The steady progress over the past twenty years in the development of beams of radioactive isotopes has allowed to vastly expand the objectives of experimental nuclear research. It is becoming possible, for example, to study in the laboratory a range of nuclear reactions that take place in exploding stars providing crucial information to understand how the chemical elements that we find on Earth were formed. Radioisotopes, selectively produced and identified, allow the study of fundamental symmetries in the low energy limit challenging theories developed at the highest energy frontier. To achieve this ambitious goal one needs to study the characteristics of unstable (radioactive) nuclei through their decays and through different nuclear reactions. In this talk I will show recent results in nuclear spectroscopy obtained using the AGATA position sensitive detector array and the perspectives related to the SPES radioactive ion beam project, presently under construction at the Legnaro National Laboratories. The characteristics of a position sensitive Ge detector array will also be discussed.