



GIANTS XII
INFN – Laboratori Nazionali del Sud, Catania
July 3-4 2025

Thursday, 03/07/2025

09:30-10:00 Welcome

Overview (Chair: S. Romano)

10:00-10:30 **M. La Cognata** "INFN Midterm plan: scientific heritage"

10:30-11:00 *Coffee Break*

Session I: BBN, evoluzione chimica della Galassia (Chair: C. Spitaleri)

11:00-11:30 **G. Cescutti** "Evoluzione chimica della Galassia e le survey delle abbondanze"

11:30-11:50 **R. Spartà** "Big Bang Nucleosynthesis refined with THM"

Session II: Stellar nucleosynthesis (Chair: A. Formicola)

11:50-12:20 **M. Limongi** "Evoluzione Stellare"

12:20-12:40 **K. Chakraborty** "The E1 and E2 capture amplitudes in $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ around the 2.42 MeV resonance"

12:40-13:00 **A. Oliva** "Carbon burning studies with the THM"

13:00-13:20 **G. Imbriani** "Direct measurement of $^{12}\text{C}+^{12}\text{C}$ towards astrophysical energy at ERNA"

13:20-13:40 **E. Masha** " $^{14}\text{N}(\text{p},\gamma)^{15}\text{O}$ nuclear cross-section at LUNA"

13:40 -14:40 *Lunch*

Session III Explosive nucleosynthesis (Chair: D. Vescovi)

15:00-15:30 **M. Pignatari** "Nucleosintesi Esplosiva"

Session IV r, i, s processes (Chair: G. Cosentino)

15:30-16:00 **S. Cristallo** "Processi s e i"

16:00-16:20 **D. Mercogliano** "New results on low energy $^{22}\text{Ne}(\alpha,\text{n})^{25}\text{Mg}$ with Shades at the LNGS Bellotti facility"

16:20-16:40 **N. Pieretti** "Neutron spectroscopy of ^{26}Mg states: constraining the $^{22}\text{Ne}(\alpha,\text{n})^{25}\text{Mg}$ reaction rate"

16:40-17:10 *Coffee Break + Photo session*

Session IV r, i, s processes (Chair: R. Buompane)

17:10-17:30 **R. Mucciola** “Recent results on neutron capture reactions at n_TOF”

17:30-17:50 **B. Mishra** “Electron capture and bound-state β Decays in ions and plasma: new calculations for s-process nucleosynthesis”

17:50-18:10 **M. Bezmalinovich** “Atomic calculations and opacities for kilonova light-curve studies: the selenium case”

21:00 *Dinner in Catania*

Friday, 04/07/2025

Sessione V Facilities and New Technologies (Chair: D. Santonocito)

09:30-09:50 **E. Naselli** “The construction of the PANDORA facility: updates and perspectives”

09:50-10:10 **D. Lattuada** “Astrophysics reaction in laser induced plasma”

10:10-10:30 **L. Gialanella/R. Buompane** “Half-life of ^7Be in different environments and different charge states”

Sessione Giovani Ricercatori flash talk (Chair: B. Mishra)

10:30-10:40 **F. Andreis** “First indirect measurement of the cross sections $^{26}\text{Al}(n,p)$ and $^{26}\text{Al}(n,\alpha)$ in the multimessenger astronomy framework”

10:40-10:50 **Samar** “Direct measurement of the total cross section of $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ with the recoil mass separator ERNA”

10:50-11:00 **A. Pidatella** “Experimental design of opacity measurements in the PANDORA plasma trap relevant for Kilonovae signals”

11:00-11:10 **R. Biasissi** “Probing key $^{19}\text{F}(p,\gamma)^{20}\text{Ne}$ resonances with innovative targets at LUNA”

11:10-11:30 *Coffee Break*

Sessione V Facilities and New Technologies (Chair: S. Palmerini)

11:30-11:50 **M. Spelta** “Neutron activation measurements in the n_TOF irradiation station”

11:50-12:10 **R. Gesuè** “Detector characterization for a new $^{12}\text{C}+^{12}\bar{\text{C}}$ reaction study at Bellotti Ion Beam Facility”

12:10-12:30 **L. Roberti** “Carbon-Oxygen Shell Interactions in Massive Stars: Nucleosynthesis and Implications”

Round Table (Conveners: R.G. Pizzone – D. Mascalì)

12:30 – 13:45 (Topics TBD)

13:45-15:00 *Lunch*

15:00 (at will, upon reservation) Visit to LNS