

International Workshop on Multi facets of Eos and Clustering 2024

Scientific Program

Tuesday, May 21st (AULA MIGNECO-LNS)

9.30 -10.00	Welcome Addresses Santo Gammino Director of INFN-LNS Stefano Romano Director of Dip. Fisica e Astronomia “Ettore Majorana” Alessia Tricomi Director INFN-Sezione di Catania	
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Session : General Presentation

Chair: Abdou Chbihi, GANIL, Caen, France

10.00-10:45	<i>Recent highlights from CHIMERA</i> Enrico De Filippo (INFN- Catania, Italy)	35'+10'
10:45 11:30	<i>Recent highlights from INDRA-Fazia</i> Diego Gruyer (LPC Caen, France)	35'+10'

Session : Nuclear dynamics from fission to multifragmentation

Chair: Francesca Rizzo UNICT&INFN-LNS, Catania, Italy

11:30-12.15	<i>Quantifying Neutron-Proton Equilibration using Molecular Dynamics Codes</i> Andrea Jedele (GSI, Germany)	35'+10'
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12.30 –14.00	Lunch	
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14:00-14:45	<i>New insights into fission from recent experiments: What drives fission across the nuclear chart?</i> Christelle Schmitt (IPHC Strasbourg, France)	35'+10'
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Chair: Nicolas Le Neindre LPC-Caen, France

14:45 – 15:10	<i>Investigations of structure effects in heavy ion fusion above the Coulomb barrier</i> Ivano Lombardo (University of Catania, INFN- Catania, Italy)	20'+5'
15:10 – 15:35	<i>Role of dissipation on the quasi-elastic barrier distributions of the $^{20}\text{Ne}+^{92,94,95}\text{Mo}$ systems</i> Giulia Colucci (Heavy Ion Laboratory, University of Warsaw)	20'+5'
15:35 – 15:50	<i>Orthogonal wave function dynamics in heavy-ion collisions</i> Paolo Napolitani (IJCLab - Orsay, France)	20'+5'

15:50 – 16.20	Coffee break	
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Chair: EV Pagano INFN-LNS, Catania, Italy

16:20 – 16:45	<i>Experimental Search for Toroidal High-Spin Isomers in Collisions of $^{28}\text{Si} + ^{12}\text{C}$ at 35 MeV/nucleon using FAUST</i> Roy Wada (Cyclotron Institute, Texas A&M University)	20'+5'
16:45 – 17:10	<i>Latest results of data analysis related to FARCOS correlator in the CHIFAR experiment</i> Cristina Zagami (University of Catania, INFN-LNS)	20'+5'
17.10 17.35	<i>Charged-Particle Identification with Advanced Artificial Intelligence Approaches</i> Daniele Dell'Aquila (University of Napoli "Federico II" & INFN-Napoli)	20'+5'

17:45-18:45	POSTER SESSION (Titles and authors at the end)	
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18:45 20:30	Welcome party	
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Wednesday, May 22nd (AULA MIGNECO-LNS)

Session : Isospin effects and Symmetry Energy in nuclear reactions

Chair: Arnaud Le Fevre GSI, Darmstad, Germany

9:00 – 9:45	<i>Symmetry energy studies via heavy-ion collisions at NSCL and future perspectives at FRIB</i> Kyle Brown (Michigan State University, USA)	35'+10'
9:45 – 10:05	<i>Isospin transport phenomena in heavy ion collisions at Fermi energies: an overview on the most recent results from the first INDRA-FAZIA experiment</i> Caterina Ciampi (INFN-Firenze, Italy)	20'+5'
10:05 –10:30	<i>Nuclear Equation of State and many-body phase-space correlations in the Constrained Molecular Dynamics</i> Massimo Papa (INFN-Catania, Italy)	20'+5'

10:30 – 11:00	Coffee break	
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Chair: Olivier Lopez LPC-Caen, France

11:00 -11:25	<i>Study of isospin diffusion from experimental data at Fermi energies: direct comparisons with transport model calculations</i> Quentin Fable (L2I Toulouse, CNRS/IN2P3, UT3)	20'+5'
11:25 -11:50	<i>Isospin dependency of collective flow using $^{129,124}\text{Xe} + ^{124,112}\text{Sn}$ collisions at 100 A MeV and $^{58,64}\text{Ni} + ^{58,64}\text{Ni}$ at 32 and 52 A MeV</i> Seon Ho Nam (Korea University)	20'+5'

Session : Clustering phenomena and multi-particle decay

Chair: Maria Colonna INFNLNS, Catania Italy

11:50 –12:35	<i>Description of many-body correlations and clustering phenomena within a unified theoretical scheme</i> Stefano Burrello (INFN-Laboratori Nazionali del Sud, Italy)	35'+10'
12:35 –13:00	<i>Clustering states investigation with FARCOS detectors</i> Fabio Risitano (University of Messina, INFN-Catania, Italy)	20'+5'

13:00 – 14:30	Lunch	
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Chair: Enrico De Filippo INFN-Catania, Italy

14.30– 14.55	<i>Study of the in medium cross section and of the clustering process by means of the bayesian technique applied to a nuclear reaction at Fermi energy</i> Silvia Piantelli (INFN-Firenze, Italy)	20'+5'
14.55 - 15:20	<i>Searching for alpha-cluster states in medium-heavy nuclei</i> Costel Marian Petrache, (University Paris Saclay and IJClab, CNRS/IN2P3)	20'+5'
15:20 –15:45	<i>Dynamics of cluster production in Xe+Sn collisions between 32 - 150 A MeV</i> Abdou Chibhi (GANIL, Caen, France)	20'+5'
18.00	<i>Visit to Catania and Social Dinner</i> (Catania downtown)	

Thursday, May 23rd (AULA CONFERENZE – Dip di Fisica e Astronomia “Ettore Majorana”)

Session : Clustering phenomena and multi-particle decay

Chair: Giuseppe Politi, UNICT & INFN-Catania Italy

9:30 – 9:55	<i>Transient di-cluster systems: the Transient Rotational Model</i> Alessia Di Pietro (INFN-LNS,Italy)	20'+5'
9:55 – 10:20	<i>A crystallographic method to investigate the presence of cluster states in ^{12}C ground state</i> Luigi Redigolo (INFN-Catania, Italy)	20'+5'

Session : New developments in detection techniques and facilities

10:20 – 11:05	<i>Status of RAON</i> Seung-Woo Hong - Institute for Basic Science, Republic of Korea ^[1]	35'+10'
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11:05 – 11:30	Coffee break	
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Chair : Sara Pirrone INFN-Catania, Italy

11:30 – 12:15	<i>Physics opportunities at FAIR</i> Yvonne Leifel (GSI, Germany)	35'+10'
12:15- 12:40	<i>NARCOS: A new correlator for neutrons and charged particles</i> Brunilde Gnoffo (University of Catania, INFN-Catania,Italy)	20'+5'
12:40- 13:05	<i>FAZIA upgrade activities in Korea</i> Giyeong Kim (Inha University)	20'+5'

13:05 – 14:15	Lunch	
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Chair: Giuseppe Cardella INFN-Catania, Italy

14:15 – 14:40	<i>A new radiation source based on laser-plasma interaction: status and perspective with the upcoming I-LUCE facility at INFN-LNS</i> Jose Suarez Vargas (INFN-LNS,Italy)	20'+5'
14:40 -15:05	<i>PISTA, a new detection system for transfer-induced fission in inverse kinematics at VAMOS</i> Lucas Begue Guillou (GANIL, Caen, France)	20'+5'
15:05 -15:30	<i>Development of a SiC detector array within the SAMOTRHACE ecosystem</i> Nunzia Simona Martorana (INFN- Catania, Italy)	20'+5'

15:30 – 16:00	Coffee break	
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16.00 -18.00	<p>ROUND TABLE –</p> <p>"Future Radioactive Ions Beams Facilities: challenges and opportunities"</p> <p>Moderator: Giuseppe Verde</p> <p>Speakers:</p> <p>Kyle Brown, Tommaso Marchi, Chiara Nociforo, Paolo Russotto</p>	
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Friday, May 24th (AULA CONFERENZE – Dip di Fisica e Astronomia “Ettore Majorana”)

Session : Nuclear equation of state and multimessenger astronomy

Chair: Paolo Russotto INFN-LNS Catania, Italy

9.30 – 10:15	<i>Nuclear equation-of-state and multi-messenger astronomy: contribution of heavy-ion collisions</i> Arnaud Le Fevre (GSI , Germany) ^[SEP]	35'+10'
10:15 - 10:40	<i>Constraints on the nuclear EoS from transport model simulations of heavy ion collisions</i> Maria Colonna (INFN-LNS,Italy)	20'+5'
10:40 –11:05	<i>Searching nuclear equation of state from isospin transport in heavy-ion reactions around the Fermi energy domain</i> Swagata Mallik (Variable Energy Cyclotron Centre, Kolkata, India)	20'+5'

11.05 – 11:30	Coffee Break	
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Chair: Elena Geraci UNICT & INFN Catania, Italy

11:30 –12:15	<i>EoS of nuclear matter above saturation density from intermediate energy heavy-ion collision</i> Dan Cozma (IFIN-HH, Romania)	35'+10'
12:15–12:40	<i>Study of light cluster population in dilute nuclear matter from heavy ion vaporization events</i> Alex Rebillard-Soulié (LPC CAEN, France)	20'+5'
12:40- 13:05	<i>Toward a better characterization of the nuclear equation of state using central collisions around Fermi energy</i> Antonin Valente (LPC Caen, IN2P3, Université de Caen-Normandie, France)	20'+5'

13:05 – 14:00	Lunch	
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First results on characterization of a Silicon Carbide dosimeter in the framework of SAMOTHRACE project Alice Barbon Università degli studi di Catania- INFN Catania
Comparison of $^{18}\text{O}+^{12}\text{C}$ at 16.7 MeV/nucleon Lucia Baldesi Università degli studi di Firenze- INFN Firenze
Impact of the Pixellation method on the FARCOS Giuseppe Cardella INFN Catania
SiC detectors for nuclear physics simulations inside Giuseppe D'Agata Università degli studi di Catania- INFN Catania
PRAGUE: Proton RANGe measure Using silicon carbide Mariacristina Guarrera Università degli studi di Catania- INFN LNS
DualGain: a programmable multichannel amplifier system to increase dynamic range in nuclear physics digital ACQ Architectures Gaspere Saccà INFN Catania
Geant4 simulations for the study of the efficiency Gianluca Santagati CNR ISPC Catania