

FissionSHE23

Advances and Challenges in Nuclear Fission and Quasi-Fission for the Super-Heavy Elements

SYMPOSIUM PROGRAMME

Monday 22.05.2023

14 – 15:00 *Registration at the Conference Desk*

15:00 – 15:30 Welcome address Emanuele Vardaci, Nicolae Carjan
G. Miele, Director of the Physics Department, University of Naples
L. Lista, Director of INFN, Napoli Division

Session 1: Super-Heavy Elements: Stability of heaviest nuclei (Chair: N. Carjan)

15:30 – 16:20 Krzysztof Pomorski *On the stability of Super Heavy Nuclei*

Session 2: Super-Heavy Elements: Synthesis of heaviest nuclei (Chair: E. Vardaci)

16:20 – 17:10 Mikhail Itkis *Nuclear Reactions for the Synthesis of Super Heavy Elements*

17:45 - 19:00 **WELCOME COCKTAIL** - Complesso SS. Marcellino e Festo

19:00 - 20:30 **CONCERT** - Complesso SS. Marcellino e Festo

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Tuesday 23.05.2023

Session 3: Facilities 1 (Chair: H. Haba)

9:30 – 10:20 Alexey Voinov *First Experiments at the Super-Heavy Element Factory*

10:20 – 11:10 Tommaso Marchi *The SPES facility at Legnaro National Laboratories*

11:10 – 11:30 COFFEE BREAK

Session 4: Facilities 2 (Chair: D. Hinde)

11:30 – 12:20 Hiromitsu Haba *Present Status and Perspective of Superheavy Element Research at RIKEN*

12:20 – 13:10 Alexander Yakushev *Chemical studies of superheavy elements at TASCA*

13:10 – 14:30 LUNCH

Session 5: On Reaction Mechanisms 1 (Chair: A. Bulgac)

14:30 – 15:20 Deepak Kumar *Production and study of Multinucleon Transfer reaction products induced by neutron-rich ^{136}Xe beam at the IGISOL facility*

15:20 – 16:10 Mert Arik *Multinucleon transfers in heavy-ion collisions using the quantal diffusion description based on the stochastic mean-field approach*

16:10 – 16:30 COFFEE BREAK

Session 6: On Reaction Mechanisms 2 (Chair: W. Trzaska)

16:30 – 17:10 Avazbek Nasirov *A new dynamical mechanism of incomplete fusion in heavy ion collisions*

17:10 – 18:00 Antonio Di Nitto *Charged Particles for searching the hyperdeformation in α -like nuclei*

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Wednesday 24.05.2023

Session 7: Shell effects in Fission and Quasi-fission 1 (Chair: D. Hinde)

09:30 – 10:20 **Jadambaa Khuyagbaatar** *Probing the fission-landscape of superheavy nuclei*

10:20 – 11:10 **Michal Kowal** *An attempt to estimate the probability of fusion versus different fission modes for very heavy systems*

11:10 – 11:30 COFFEE BREAK

Session 8: Shell effects in Fission and Quasi-fission 2 (Chair: J. Khuyagbaatar)

11:30 – 12:20 **David Hinde** *Sequential fission and the influence of ^{208}Pb closed shells on the dynamics of superheavy element synthesis reactions.*

12:20 – 13:10 **Tilak Kumar Ghosh** *Exploring Shell Effects and Quasi-fission of Heavy and Super Heavy Elements*

13:10 – 14:30 LUNCH

Session 9: On Reaction Mechanisms 3 (Chair: G. La Rana)

14:30 – 15:20 **Wladyslaw Trzaska** *Three Decades of Nuclear Reactions and Fission Studies in Jyväskylä*

15:20 – 16:10 **Diego Ramos** *The Fission Program in Inverse Kinematics at VAMOS/GANIL. Isotopic Fission Yields and Beyond*

16:10 – 16:30 COFFEE BREAK

Session 10: Observables in Fission 1 (Chair: T. Ghosh)

16:30 – 17:20 **Meghashree Cheralu House** *Study of Fission Fragments Mass & Energy distribution in Pre-Actinide Region*

17:20 – 17:50 **M. Ashaduzzaman** *Implementation of the TOSCA spectrometer in GEANT4: A,Z-Identification of reaction products*

20:00 **Social Dinner – Taverna dell'Arte – Rampe San Giovanni Maggiore, 1**

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Thursday 25.05.2023

Session 11: The fission process 1 (Chair: N. Carjan)

09:30 – 10:20 **Aurel Bulgac** *Unraveling the Many Facets of the Non-Equilibrium Fission Dynamics: A Real-Time Quantum Approach*

10:20 – 11:10 **David Regnier** *Machine Learning collective variables of the fission process*

11:10 – 11:30 COFFEE BREAK

Session 12: The fission process 2 (Chair: K. Pomorski)

11:30 – 12:20 **Nicolae Carjan** *Pre-scission approach to fragment masses: from super-symmetric to super-asymmetric fission*

12:20 – 13:10 **Tathagata Banerjee** *Search for possible fission modes in ^{254}Fm and ^{238}Np*

13:10 – 14:30 LUNCH

Session 13: Observables in Fission 2 (Chair: D. Ramos)

14:30 – 15:20 **Claudia Anghel** *Studies of alpha decay from Super Heavy Nuclei with $Z=118-122$ and $N \approx 172$*

15:20 – 16:10 **Meetika Narang** *Measurement of fission product masses and isotopic yields from ^{252}Cf spontaneous fission at the FRS Ion Catcher*

16:10 – 16:30 COFFEE BREAK

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Friday 26.05.2023

Session 14: Search and identification of Heavy elements (Chair: E. Vardaci)

- 09:30 – 10:20 **Martin Veselsky** *Investigating the possible existence of hyper-heavy nuclei in a neutron-star environment*
- 10:20 – 11:10 **Jose J. Valiente-Dobon** *The gamma-ray tracking array AGATA at LNL: some selected topics*
- 11:10 – 11:30 COFFEE BREAK
- 11:30 – 12:30 Concluding Remarks
- 12:30 LUNCH