Fifth International Workshop on State of the Art in Nuclear Cluster Physics

June 10-14, 2024, Hvar Island, Croatia

PROGRAMME

STATE OF THE ART IN NUCLEAR CLUSTER PHYSICS 5

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Monday, June 10th 2024		
9:00 - 9:10	M. Milin (UniZG)	Welcome
Plenary Session		
9:10 - 9:50	M. Kimura (RIKEN)	State of the Art in Theoretical Nuclear Cluster Physics
9:50 - 10:30	G. Rogachev (Texas A&M)	State of the Art in Experimental Nuclear Cluster Physics
10:30 - 11:00	Coffee Break	
Session 1		
11:00 - 11:30	R. Kanungo (St. Mary's U.)	Exploring exotic features of neutron-rich nuclei with direct reactions
11:30 - 12:00	M. Assié (IJCLab)	Neutron-proton pairing in the self-conjugate nuclei of the f-shell through two-nucleon transfer reactions
12:00 - 12:20	A. Afanasjev (MSU)	Clusterization aspects in the high spin states of fast rotating nuclei
12:20 - 12:40	S. Burrello (LNS)	Dilute nuclear matter with light clusters and in-medium effects: towards a unified dynamical framework
12:40 - 14:30	Lunch	
Session 2		
14:30 - 15:00	M. Marques (LPC Caen)	Very large neutron-nucleus scattering lengths: the ^{18}B case
15:00 - 15:30	J. Bishop (U. Birmingham)	Cluster physics with a TPC: ^{13}N and ^{14}O
15:30 - 15:50	S. Beceiro-Novo (U. Coruna)	Exploring Clustering in Exotic Nuclei with Solenoidal Spectrometers
15:50 - 16:20	Coffee Break	
16:20 - 16:40	J. Chen (SUSTech)	Inelastic scattering reaction as a probe for monopole, dipole and quadrupole excitations
16:40 - 17:00	T. Yamada (Kanto U.)	Variational calculation of nuclear matter and effect of many-body terms with the tensor-optimized Fermi sphere method

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Tuesday, June 11th 2024		
Session 3		
9:00 - 9:30	B. Zhou (Fudan U.)	Searching for Hoyle-analogy states in light nuclei
9:30 - 10:00	T. Kawabata (Osaka U.)	Search for alpha-condensed states in ^{20}Ne and ^{24}Mg
10:00 - 10:20	G. Roepke (U. Rostock)	Alpha-like correlations in ^{20}Ne, comparison of quartetting wave function and THSR approaches
10:20 - 10:40	Y. Funaki (Kanto U.)	Cluster states in ^{20}Ne studied by the 5-alpha orthogonality condition model
10:40 - 11:10	Coffee Break	
Session 4		
11:10 - 11:40	A. Laird (U. York)	The structure of ^{21}Ne and the impact on heavy element abundances
11:40 - 12:10	D. Dell'Aquila (U. Naples)	Radiative Decay Branching Ratio of the Hoyle State in ^{12}C via Charged Particle Coincidence Techniques
12:10 - 12:30	D. Jenkins (U. York)	Extending the Hoyle-state paradigm to ^{12}C+^{12}C fusion
12:30 - 12:50	Y. Taniguchi (Fukuyama U.)	Microscopic Study of Cluster Resonances Contributing to Astronuclear Reactions
12:50 - 14:30	Lunch	
Session 5		
14:30 - 15:00	E. Khan (IJCLab)	Nuclear clustering over the nuclear chart from a covariant EDF approach
15:00 - 15:30	R. Smith (Sheffield Hallam U.)	The search for high-excitation particle-hole cluster bands in ^{8}Be
15:30 - 15:50	K. Kato (Hokkaido U.)	Soft dipole resonance in ^{8}He and ^{8}C
15:50 - 16:20	Coffee Break	
16:20 - 16:40	L. Heitz (CEA Saclay)	Search for a new type of radioactivity: the double alpha decay
16:40 - 17:00	I. Rogov (JINR)	Cluster approach to fission processes in heavy and superheavy elements

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Wednesday, June 12th 2024		
Session 6		
9:00 - 9:30	A. Di Pietro (LNS)	Reaction dynamics and nuclear structure of light radioactive nuclei
9:30 - 10:00	J. Casal (U. Sevilla)	Neutron knockout and transfer from Borromean nuclei
10:00 - 10:20	L. Fortunato (U. Padova)	Algebraic model studies of the structure and reactions of ^{12}C and ^{16}O
10:20 - 10:40	Y. Lashko (INFN Padova)	Synthesis and Burning of Lithium Isotopes in Reactions Induced by ^{7}Li+d, ^{7}Be+d, ^{6}Li+t, and ^{6}Li+^{3}He Interactions
10:40 - 11:10	Coffee Break	
Session 7		
11:10 - 11:40	E. Garrido (CSIC Madrid)	Three-body calculations of beta decay applied to ^{11}Li
11:40 - 12:00	M. Ploszajczak (GANIL)	Clusterization in nuclear states at the edge of stability
12:00 - 12:20	S. Lukyanov (JINR)	Nucleon and delute cluster transfer in the scattering of ^{2}H, ^{3}He and ^{6}Li from Be target
12:20 - 12:40	L. Redigolo (U. Catania)	Study of low energy ^{3}He+^{13}C reactions and the structure of ^{16}O
12:40 - 14:30	Lunch	
14:30	Boat trip	

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Thursday, June 13th 2024		
Session 8		
9:00 - 9:30	H. Iwasaki (FRIB)	Cluster at the limit of stability - electromagnetic responses of weakly-bound nuclei
9:30 - 10:00	A. Goasduff (LNL)	Exploring the capabilities of the AGATA tracking array for cluster studies at LNL
10:00 - 10:20	K. Launey (LSU)	New studies and predictions for nuclear clustering and dynamics in the ab initio symmetry-adapted framework
10:20 - 10:40	A. Kuşoğlu (ELI-NP)	γ-ray spectroscopic study of self-conjugate ^{10}B nucleus with inelastic proton scattering
10:40 - 11:10	Coffee Break	
Session 9		
11:10 - 11:40	S. Typel (TU Darmstadt)	Cluster Correlations in Heavy Nuclei
11:40 - 12:10	Z. Yang (Peking U.)	TBD
12:10 - 12:30	T. Nakatsukasa (U. Tsukuba)	Local alpha strength functions for alpha knockout reactions
12:30 - 12:50	H. Pais (U. Coimbra)	Influence of the tetraneutron on the EoS under core-collapse supernova and heavy-ion collision conditions
12:50 - 14:30	Lunch	
Session 10		
14:30 - 14:50	D. Nauruzbayev (NURIS)	Alpha cluster structure of light nuclei in the resonant reactions at Astana cyclotron
14:50 - 15:10	N. Vukman (INFN Perugia)	The ^{19}F(p,$\alpha_{1,2}$) reaction studied via Trojan Horse Method in astrophysical range of interest
15:10 - 15:30	D. Stajkowski (U. Birmingham)	Exploring the Trojan Horse Method for Nuclear Fusion Dana
15:30 - 16:00	Coffee Break	
Flash talks session		
16:00 - 16:10	N. Soić (RBI)	Cluster structure of excited states of neutron-rich beryllium and boron isotopes
16:10 - 16:20	L. Palada (RBI)	Clustering in ^{11,12,13}C
16:20 - 16:30	DY. Tao (Fudan U.)	Multi-neutron correlations in ^{9}H and ^{10}He

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16:30 - 16:40	M. Sigmund (RBI)	Investigating nuclei produced in ^{9}Li+^{11}B reaction
16:40 - 16:50	J. Diklić (RBI)	Multinucleon transfer reactions in ^{206}Pb + ^{118}Sn
16:50 - 17:00	I. Lihtar (RBI)	Neutron detector NeuLAND
19:00	Conference dinner	

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Friday, June 14th 2024		
Session 11		
9:00 - 9:30	M. Gai (U. Connecticut)	The Algebraic Cluster Model (^{12}C, ^{20}Ne) and Cluster Shell Model (^{7}Be, ^{19}F and ^{8}Be)
9:30 - 9:50	J. Cseh (ATOMKI)	On the cluster-shell coexistence
9:50 - 10:10	D. Jelavić Malenica (RBI)	Exploring cluster structures in the high excitation energy region of Be, B, and C isotopes via ^{10}B + ^{10}B nuclear reactions
10:10 - 10:30	F. Risitano (INFN Catania)	Neutron-rich clustering investigation at LNS with FARCOS detectors
10:30 - 11:00	Coffee Break	
11:00 - 11:20	Y. Chen (Peking U.)	Experimental Study on Negative-parity Linear-chain Rotational Bands in ^{14,16}C
11:20 - 11:40	K. Wei (Peking U.)	The study of BEC-analog structure in ^{14}C
11:40 - 12:20	M. Freer (U. Birmingham)	Closing