

# **SOTANCP4 program**

# **Sunday May 13<sup>th</sup> 2018**

Registration opens at 6:00 PM

7:00 PM, Welcome reception

## Monday May 14<sup>th</sup> 2018

Time		Speaker	Title
8:55 AM	Welcome		
9:00 AM	Plenary session Chair	P. Schuck (IPN-Orsay)	Recent theoretical advances and open problems in nuclear cluster physics
9:40 AM	H. Horiuchi	E. Vardaci (Naples University)	Overview of recent experimental results in nuclear cluster physics
10:20 AM	Coffee Break		
10:40 AM	Chair A. Volya	K. Launey (LSU)	Emergent clustering phenomena in the framework of the ab initio symmetry-adapted no-core shell model
11:10 AM		T. Otsuka (Tokyo U, RIKEN)	Ab initio description of clustering phenomena in atomic nuclei by the Monte Carlo shell model
11:40 AM		T. Ahn (ND)	First measurement of $B(E2; 3/2^- \rightarrow 1/2^-)$ in ${}^7\text{Be}$ : A test for ab-initio models
12:00 PM		T. Neff (GSI)	Clustering in $A=11-13$ Nuclei
12:20 PM		R. Baker (LSU)	Monopole, dipole, and quadrupole excitations in nuclei from the ab initio symmetry-adapted no-core shell model
12:40 PM	Lunch		
2:20 PM	Chair Y. Funaki	M. Kimura (Hokkaido U)	Nuclear molecules in neutron-rich nuclei
2:50 PM		G. Roepke (Rostok U)	Few-nucleon correlations in dense matter
3:20 PM		T. Suhara (Matsue CT)	Linear-chain and gas-like structures in nuclei near ${}^{12}\text{C}$
3:40 PM		T. Baba (Hokkaido U)	Characteristic decay patterns of the linear-chain states in carbon isotopes
4:00 PM	Coffee Break		
4:20 PM	Chair K. Kato	K. Hagel (TAMU)	Alpha Decaying Heavy Elements Produced in Multi-Nucleon Transfer Reactions of Heavy Nuclei
4:40 PM		D. Bai (Nanjing University)	Charged Particle Emissions in Strong Electromagnetic Fields
5:00 PM			

## Tuesday May 15<sup>th</sup> 2018

Time		Speaker	Title
9:00 AM	Chair V.Z. Goldberg	M. Wiescher (ND)	Clusters and Mirrors
9:30 AM		A. Tumino(INFN Kore University)	C-burning at astrophysical energies via the Trojan Horse method
10:00 AM		A. Dreyfuss (Louisiana St. U.)	Clustering and alpha-capture reaction rates from first-principle structure calculations for nucleosynthesis
10:20 AM		J. Swartz (Aarhus University)	Investigating the relative strengths of $^{15}\text{N}(p,\alpha)^{12}\text{C}$ and $^{15}\text{N}(p,\gamma)^{16}\text{O}$ above the proton breakup
10:40 AM		T. Kawabata (Kyoto University)	Search for the rare gamma-decay mode in $^{12}\text{C}$
11:00 AM	Coffee Break		
11:20 AM	Chair L. Sobotka	D. dell'Aquila (NSCL MSU)	A new measurement of the direct alpha-decay width of the Hoyle state in $^{12}\text{C}$
11:50 AM		M. Ito (Kansai University)	Evidence of enhanced 3- $\alpha$ radius in $\alpha + ^{12}\text{C}$ inelastic scattering
12:10 PM		B. Zhou (Hokkaido University)	The cluster structure of $^{12}\text{C}$ within the THSR wave
12:30 PM	Lunch		
2:10 PM	Chair A. Tumino	M. Avila (ANL)	Study of $\alpha$ -particle induced reactions using the MUSIC detector
2:40 PM		J. DeBoer (ND)	The importance of $\alpha$ -clustering in nuclear astrophysics
3:10 PM		N. Soic (Ruder Boskovic Institute)	Study of clustering in $^{17,18}\text{O}$ via helium decays of the excited state
3:30 PM		M. Schmidt (TU Darmstadt)	Halo Effective Field Theory for Nuclear Reactions
3:50 PM	Coffee Break		
4:10 PM	Chair Z-Z Ren	Y. Funaki (Kanto Gakuin University)	Container evolution and dynamics of cluster formation
4:40 PM		U. Datta (Saha Institute Of Nuclear Physics)	Signature of cluster structure near beta-stability and far from stability
5:00 PM		X-G Cao (Shanghai Institute of Applied Physics)	Evidence for resonances in the 7- $\alpha$ disassembly of highly excited $^{28}\text{Si}$
5:20 PM		Y. Chiba (Hokkaido University)	Isoscalar transitions and decay properties of $^{24}\text{Mg}$ studied with antisymmetrized molecular dynamics
5:40 PM	END		

## Wednesday May 16<sup>th</sup> 2018

Time		Speaker	Title
9:00 AM	Chair M. Kimura	B. Schuetrumpf (GSI / TU Darmstadt)	Clustering in pre-compound nuclei in the TDDFT framework
9:30 AM		V. Vasilevsky (Bogolyubov Institute for Theoretical Physics)	The Hoyle-analog states in light nuclei
10:00 AM		K. Kato (Hokkaido University)	Virtual states in the complex scaling method
10:20 AM		R.D. Lasserri (Institut de Physique Nucleaire d'Orsay)	Influence of quantum correlations on cluster emergence through a relativistic approach
10:40 AM		S. Pirrie (University of Birmingham)	Investigating the nuclear molecule structure of states in oxygen-18
11:00 AM	Coffee Break		
11:20 AM	Chair U. Datta	J. Bishop (University of Birmingham)	Is the Hoyle state condensed? Probing nuclear structure via direct 3-body decays
11:50 AM		J. Refsgaard (KU Leuven)	Three-body effects in the Hoyle-state decay
12:20 PM		J. Takahashi (Waseda University)	New description to soft modes in N- $\alpha$ cluster states as Bose-Einstein condensation based on quantum field theory with zero mode excitation
12:40 PM		Z. Chen (Institute of Modern Physics, CAS)	Study of three-body force and fragmentation in nuclear reactions
1:00 PM	Lunch		
2:00 PM	Excursion to NASA		
5:00 PM	coming back from NASA		

# Thursday May 17<sup>th</sup> 2018

Time		Speaker	Title
9:00 AM	Chair V. Vasilevsky	L. Sobotka(Washington University)	Lessons learned by invariant mass spectrometry about the continuum structure of light nuclei
9:30 AM		A. Volya (FSU)	Clustering and the nuclear many-body problem
10:00 AM		M. Barbui (TAMU)	Searching for states analogous to the $^{12}\text{C}$ Hoyle state in heavier nuclei using a thick target in inverse kinematics
10:20 AM		M. Munch (Aarhus University)	Background free gamma ray spectroscopy of the $^7\text{Li}(p,\gamma)\alpha\alpha$ reaction at 441keV
10:40 AM	Coffee Break		
11:00 AM	Chair K. Launey	S. Courtin (IPHC and University of Strasbourg)	The $^{12}\text{C}$ - $^{12}\text{C}$ fusion reaction at deep sub-barrier energies
11:30 AM		T. Myo(Osaka Institute of Technology)	Tensor-optimized antisymmetrized molecular dynamics with bare forces for light nuclei
12:00 PM		S. Upadhyayula (TAMU)	Probing the cluster structure in $^{10}\text{Be}$ using resonant $^6\text{He} + \alpha$ scattering
12:20 PM		A. Nurmukhanbetova (Nazarbayev University)	Resonance reactions at Astana Cyclotron
12:40 PM	Lunch		
2:20 PM	Chair T. Kawabata	S. Adachi (Osaka University)	Systematic analysis of inelastic alpha scattering off self-conjugate $A = 4n$ nuclei
2:50 PM		P. Marevic (CEA,DAM,DIF and IPN Orsay)	Nuclear clustering within the beyond relativistic mean-field framework
3:10 PM		H. Masui (Kitami Institute of Technology)	Role of the tensor force on the proton-neutron correlation in $N=Z$ nuclei
3:30 PM		Y. Taniguchi (Kagawa College)	Cluster formation in low- and high-lying states
3:50 PM		H. Morita (Kyoto University)	Low-Energy Gamow-Teller Transitions in deformed $N=Z$ odd-odd Nuclei
4:10 PM	Coffee Break		

4:30 PM	Chair G. Roepke	J. Gauthier (TAMU)	Use of a Nucleation Based Ternary Fission Model to Reproduce Neck Emission in Heavy-Ion Reactions
4:50 PM		B. Singh (Sri Guru Granth Sahib World University)	Clustering effects in the reaction mechanism of light mass composite nuclei A~20-40
5:10 PM	END		
6:00 PM	Reception		
7:00 PM	Conference Dinner		

## Friday May 18<sup>th</sup> 2018

Time		Speaker	Title
9:00 AM	Chair S. Courtin	R.Lazauskas (IPHC, Strasbourg)	Description of $^5\text{H}$ resonant states
9:30 AM		A. Shirokov (M.V.Lomonosov Moscow State University)	Tetraneutron resonance: theory
9:50 AM		T. Furumoto (Yokohama N U)	Reduction of channel coupling effect on Li isotope elastic scatterings by glue-like behaviour of excess neutron
10:10 AM		J-S. Wang (Institute of Modern Physics, CAS)	Cluster Structure of Excited $^9\text{Li}$
10:30 AM	Coffee Break		
10:50 AM	Chair J.B Natowitz	C-B. Fu (Shanghai, Jiao Tong University)	D+D and D+Li Reactions in Plasma induced by High-Intensity Lasers
11:10 AM		W. Horiuchi (Hokkaido University)	Competition between nucleon- and anti-K NN-cluster correlations in kaonic nuclear systems
11:30 AM		B-A. Li (TAMUC)	Neutron-proton short range correlation and its impacts on the equation of state of dense neutron-rich matter
11:50 AM		M. Milin(Zagreb University)	Closing remarks
12:30 PM	END		