Monday 23.05.2016

9:00 – 10:00 Registration at the Conference Desk

10:00 – 10:30 Welcome address G. Trombetti, L. Merola, G. La Rana, P. Cappelletti, E. Vardaci

PLE- Session 1: State of the Art: Experiment (Chair: E. Vardaci)

10:30 – 11:10 C. Beck* Recent experimental results on nuclear cluster physics

11:10 – 11:30 COFFEE BREAK

PLE- Session 2: State of the Art: Theory – Part 1 (Chair: H. Horiuchi)

11:30 – 12:10 F. Iachello* Recent theoretical results in nuclear cluster physics
12:10 – 12:35 R. Bijker Geometric symmetries in light nuclei
12:35 – 13:00 M. Sambataro Structure of 4n nuclei in a formalism of quartets
13:00 – 13:25 J. Cseh Clustering and quarteting in light nuclei

13:25 – 15:00 LUNCH

PLE-Session 3: Clusters and Nuclear Astrophysics (Chair: A. Tumino)

15:00 – 15:30 C. Spitaleri* Clusterization of Light Nuclei and the Trojan Horse Method
15:30 – 16:00 P. Descouvemont* Microscopic description of $^6$He elastic scattering on heavy targets
16:00 – 16:25 T. Kawabata Measurement of the cross section for the $^4$He($^4$He, n)$^7$Be reaction as a possible solution to the cosmological lithium problem
16:25 – 16:50 D. Hove Structure and decay at rapid proton capture waiting points

16:50 – 17:15 COFFEE BREAK
PAR-1.A: Parallel Session A (Chair: G. Rogachev)

17:15 – 17:35  R. Smith  
Spectroscopy of the Borromean $^9$Be and $^9$B Mirror Nuclei

17:35 – 17:55  T. Furumoto  
Study of similarity and dissimilarity between $^{10}$Be and $^9$Li nuclei with microscopic structure and reactions models

17:55 – 18:15  T. Baba  
Structure and decay pattern of linear chain states in neutron-rich Carbon isotopes

18:15 – 18:35  D. Dell’Aquila  
Study of the cluster structure of $^{10}$Be and $^{16}$C neutron-rich isotopes by means of intermediate energies breakup reactions

PAR-1.B: Parallel Session B (Chair: P. Gomes)

17:15 – 17:35  S. Koyama  
Cluster structure on neutron rich nuclei $^{16}$C

17:35 – 17:55  H. Morita  
Proton and Neutron Pair Correlations in $^{10}$B

17:55 – 18:15  R.D. Lasseri  
Impact of 4-body correlations on clustering

18:15 – 18:35  K. Kravvaris  
Microscopic configuration interaction studies of nuclear clustering

PAR-1.C: Parallel Session C (Chair: M. La Commara)

17:15 – 17:35  A.V. Afanasjev  
High spin structures in the A≈ 40 mass region: from superdeformation to extreme deformation and clusterization

17:35 – 17:55  T. Fukui  
Probing surface distribution of $\alpha$-cluster in $^{20}$Ne via $\alpha$-transfer Reaction

17:55 – 18:15  Y. Kikuchi  
Photodisintegration cross section of $^9$Be up to $E_\gamma = 16$ MeV in the $\alpha + \alpha + n$ three-body model

18:15 – 18:35  T. Furuno  
An active target MAIKo to investigate cluster structures in unstable nuclei

20:00 – 23:00  WELCOME COCKTAIL AND CONCERT  
(Arcibasilica di S. Giovanni Maggiore a Pignatelli)
PLE-Session 4: $^{12}$C: Experiments and Theory – Part 1 (Chair: W. von Oertzen)

9:00 – 9:30  O. S. Kirsebom*  Experimental progress on clarifying the excitation spectrum of $^{12}$C

9:30 – 10:00  M. Gai*  Current and Future Tests of the Algebraic Cluster Model in Carbon Isotopes

10:00 – 10:25  M. Tsumura  Search for the rare $\gamma$-decay mode in $^{12}$C

10:25 – 10:50  T. Suhara  $\alpha$-cluster breaking effects on cluster structures in $^{12}$C

10:50 – 11:30  COFFEE BREAK

PLE-Session 5: $^{12}$C: Experiments and Theory – Part 2 (Chair: R. Lovas)

11:30 – 12:00  J. Draayer*  No Core Symplectic Model - Exploiting Hidden Symmetry in Atomic Nuclei

12:00 – 12:30  M. Itoh*  Measurement of the 3-$\alpha$ decay from the Hoyle and the broad 10 MeV states in $^{12}$C

12:30 – 12:55  H. Horiuchi  Nonlocalized clustering and evolution of cluster structure in nuclei

12:55 – 13:20  L. Morelli  Clustering effects in fusion evaporation reactions with light even-even N=Z nuclei

13:20 – 15:00  LUNCH

PLE-Session 6: Clusters in Heavy Ion Collisions and Nuclear Matter (Chair: A. Bracco)

15:00 – 15:30  B. Borderie*  Alpha-particle clustering in Excited alpha-conjugate nuclei

15:30 – 16:00  L. Moretto*  From the cluster emission to the experimental liquid–vapor phase diagram of bulk, symmetric, uncharged nuclear matter

16:00 – 16:25  S. Typel  A comparison of equation of state models with different cluster dissolution mechanisms

16:25 – 16:50  M. Papa  Effective interaction and cluster production in Nuclear Dynamics

16:50 – 17:15  COFFEE BREAK
PAR-2.A: Parallel Session A (Chair: I. Lombardo)

17:15 – 17:35  J. Bishop  Searching for $\alpha$-gas states in $^{28}$Si with CHIMERA and FARCOS

17:35 – 17:55  L. Quattrocchi  Study of resonances produced in light nuclei through two and multi-particle correlations.

17:55 – 18:15  J. Rodriguez-Sanchez  Fission dynamics at high excitation energies investigated in complete kinematic measurements

18:15 – 18:35  Z.H. Yang  Study on the cluster structure in nuclei by using direct reactions

18:35 – 18:55  L. Francalanza  Projectile’s in medium break-up in $^{36}$Ar+$^{58}$Ni central collisions

PAR-3.B: Parallel Session B (Chair: F. Cappuzzello)

17:15 – 17:35  V.V. Samarin  Microscopic time-dependent description of alpha-cluster transfer and incomplete fusion in reactions with $^{12}$C and $^{16}$O near Coulomb barrier

17:35 – 17:55  D. Carbone  Two-neutron clustering aspects in the transitions induced by the $^{13}$C($^{18}$O,$^{16}$O)$^{15}$C reaction at 84 MeV incident energy

17:55 – 18:15  H. Masui  Deuteron-Like Correlation for the $T = 0$ Channel in $^{18}$F Studied within the Continuum Contributions

18:15 – 18:35  E.C. Pinilla  Coulomb breakup of the Borromean nucleus $^{22}$C

18:35 – 18:55  Yu. M. Tchuvil’sky  Exchange-Induced Effective Interaction in Cluster Reaction and Decay Channels

PAR-4.C: Parallel Session C (Chair: S. Dmitriev)

17:15 – 17:35  M. Odsuren  A Virtual State in a Two-Body System Using the Complex Scaling Method

17:35 – 17:55  B.V. Carlson  A Theoretical Study of Deuteron-induced Surrogate Reactions

17:55 – 18:15  T.V. Chuvilskaya  Isomeric cross section ratios for the reactions $^{86(87)}$Sr($\alpha$,n(2n))$^{89}$mg$^{89}$Zr

18:15 – 18:35  S. Bailey  Extracting the Spectral Signature of Alpha Clustering in Medium Mass Nuclei

18:35 – 18:55  S. Manna  The effect of clusters on fragment emission mechanism

18:55 – 19:15  B. Gnofo  N/Z effects on the reaction mechanisms cross sections in the $^{78}$Kr+$^{40}$Ca and $^{86}$Kr+$^{40}$Ca collisions at 10 AMeV

PLE-Session 7: Clusters in Light Nuclei – Part 1 (Chair: M. Fujiwara)

9:00 – 9:30  Tz. Kokalova Wheldon*  Beautiful clusters
9:30 – 10:00 Y. Funaki*  Cluster structures in the excited states above the Hoyle state
10:00 – 10:25 H. Yamaguchi  Study on $\alpha$-cluster levels in non-4n nuclei using low-energy RI beams
10:25 – 10:50 D. Torresi  $^{15}$O+$\alpha$ resonant elastic scattering to studying cluster states in $^{19}$Ne

10:50 – 11:15  COFFEE BREAK

PLE-Session 8: Clusters and Correlations (Chair: G. Verde)

11:15 – 11:45  S. Shimoura*  Tetraneutron states populated via $^4$He($^8$He,$^8$Be) reaction
11:45 – 12:15  L. Grigorenko*  High-precision studies of exotic structure and decay effects in the dripline nuclei within three-body core+N+N model
12:15 – 12:40  T. Myo  Tensor correlations in light nuclei with tensor-optimized antisymmetrized molecular dynamics
12:40 – 13:05  W. von Oertzen  Covalent Binding by Neutrons on the Femto-scale

13:05 – 14:45  LUNCH

PLE-Session 9: State of the Art: Theory – Part 2 (Chair: N. Lo Iudice)

14:45 – 15:15  P. Schuck*  The $\alpha$-particle condensate structure of the Hoyle and analogous states. Where do we stand after 15 years?
15:15 – 15:45  G. Ropke*  Alpha Decay Width of $^{212}$Po from a quartetting wave function approach
15:45 – 16:15  E. Khan*  Crystal, cluster and quantum liquid nuclear states
16:15 – 16:40  T. Otsuka  Ab initio Monte Carlo Shell Model calculations on Be and C isotopes

16:40 – 17:00  COFFEE BREAK
PAR-3.A: Parallel Session A (Chair: M. Papa)

17:00 – 17:20 M. Cicerchia  
Pre-equilibrium emission and clustering in medium-mass nuclei: $^{46}$Ti from $^{16}$O + $^{30}$Si, $^{18}$O + $^{28}$Si, $^{19}$F + $^{27}$Al

17:20 – 17:40 R. Ogul  
Production of exotic nuclei in heavy ion collisions at Fermi energies

17:40 – 18:00 P. Russotto  
Probing the Symmetry Term of the Nuclear Equation of State at High Baryonic Densities

18:00 – 18:20 C. Parascandolo  
Evidence of Dynamical Dipole Mode excitation in the $^{40,48}$Ca + $^{152,144}$Sm fusion evaporation and fission reactions at 11MeV/A

PAR-3.B: Parallel Session B (Chair: C. Beck)

17:00 – 17:20 S. Watanabe  
Four- and three-body breakup mechanism of $^6$Li elastic scattering

17:20 – 17:40 P. Rath  
Cluster structure effect of projectile in $^7$Li+$^{208}$Pb reaction

17:40 – 18:00 M. Spieker  
$\alpha$-clustering and its connection to the E1 response of heavy nuclei

18:00 – 18:20 M. Murata  
The measurement of $^4$He Photodisintegration with MAIKo active target

PAR-3.C: Parallel Session C (Chair: M. Kimura)

17:00 – 17:20 Y. Chiba  
Asymmetric cluster structure and isoscalar monopole/dipole transitions of $^{28}$Si

17:20 – 17:40 R. Imai  
A new generator coordinate method to describe gas-like states

17:40 – 18:00 G. Lévai  
Semimicroscopic algebraic description of $\alpha$ clustering in Ne isotopes

18:00 – 18:20 A. Solovyev  
Radiative Capture Processes in Multi-Size-Scale Algebraic Version of Resonating Group Model

19:45 – 23:00 KEYNOTE TALK AND SOCIAL DINNER  
(Reale Basilica di S. Chiara ed annesso Monastero)

19:45 – 20:15 H. Horiuchi*  
An overview of the History of Cluster Conferences

20:20 – 23:00 All participants  
Social dinner at St. Chiara Cloister
PLE-Session 10: Superheavy Nuclei and Cluster Decay (Chair: D. Poenaru)

9:00 – 9:30  M. Itkis*  
Fusion-Fission of superheavy nuclei and clustering phenomena

9:30 – 10:00  N. Carjan*  
Symmetric and Super-Symmetric Spontaneous Fission of Very Heavy Elements: Challenges and Prospects

10:00 – 10:25  D.M. Kamanin  
Observation of shape isomer states in fission fragments

10:25 – 10:50  Yu.V. Pyatkov  
Collinear cluster tri-partition - the brightest observations and their treating

10:50 – 11:15  COFFEE BREAK

PLE-Session 11: Clusters in Light Nuclei – Part 2 (Chair: Y. Abe)

11:15 – 11:45  M. Kimura*  
Probing asymmetric clusters by isoscalar monopole/dipole transitions

11:45 – 12:15  G. Rogachev*  
Quantifying clustering near α-threshold

12:15 – 12:40  S.V. Lukyanov  
Some Insights into $^5$He-Cluster Structure of $^9$Be

12:40 – 13:05  F. M. Marqués  
Exploring the Structure of the Most Neutron-rich Boron and Carbon Isotopes

13:05 – 13:30  M. Ito  
Spatial measures of the nuclear reactions

13:30 – 15:30  LUNCH

15:30 – 18:00  All participants  
Excursion at the Capodimonte Royal Palace
PLE-Session 12: Nuclear Molecules (Chair: M. Freer)

9:00 – 9:30  E. Uegaki*  A Novel Visage of Molecular Resonances in $^{12}$C + $^{12}$C

9:30 – 10:00  S. Courtin*  Experimental investigations of the sub-Coulomb $^{12}$C+$^{12}$C and $^{12}$C+$^{16}$O reactions

10:00 – 10:25  Y. Taniguchi  $^{16}$O + $^{16}$O molecular structures of superdeformed states in S isotopes

10:25 – 10:50  D. Montanari  Search for highly-excited superdeformed states in $^{28}$Si

10:50 – 11:15  COFFEE BREAK

PLE-Session 13: State of the Art: Theory – Part 3 (Chair: S. Typel)

11:15 – 11:45  W. Horiuchi*  Alpha-clustering near nuclear surface and harmonic-oscillator excitations

11:45 – 12:10  R. Lovas  Preformation of alpha clusters in alpha decay

12:10 – 12:35  G. Royer  Alpha clustering and nuclear molecules in $^{8}$Be, $^{12}$C, $^{16}$O, $^{20}$Ne, $^{24}$Mg, and $^{32}$S

12:35 – 13:00  M. S. Hussein  Theories of Inclusive Non-Elastic Breakup and Incomplete Fusion of Weakly-Bound Two-Cluster Projectiles Revisited: Critical Assessment

13:00 – 15:00  LUNCH

PLE-Session 14: Cluster Effects in Nuclear Reactions and Decay (Chair: M. S. Hussein)

15:00 – 15:25  P.R.S. Gomes  Breakup of the weakly bound $^{6,7}$Li two-cluster nuclei at near barrier energies

15:25 – 15:50  A.A. Cowley  Influence of Nuclear Cluster Structure in Proton-Induced Pre-Equilibrium Composite Particle Emission

PLE-Session 15: Summary and Conclusions (Chair: D. Baye)

15:50 – 16:30  Y. Kanada En’yo*  Closing Remarks: Theoretical Perspectives

16:30 – 17:10  M. Freer*  Closing Remarks: Experimental Perspectives

17:10  E. Vardaci, I. Lombardo  Closing Remarks and Acknowledgments