



## FUSION17 Scientific Programme

### Sunday 19<sup>th</sup> February

**18:00-20:00**

#### Welcome Reception

*The welcome reception will be held in the Atrium of the Henry Jones Art Hotel.*

### Monday, 20<sup>th</sup> February

**08:30 – 09:00**

#### Registration

**09:00 – 10:40**

#### Session 1

**Chair: Andrew Stuchbery**

09:00 A. E. Stuchbery *Conference opening: welcome and introduction*

09:05 M. Dasgupta *Conference opening: welcome and introduction*

09:10 M. Thoennessen *Fusion and the discovery of isotopes* p19

09:40 K. Hagino *Evolving theoretical descriptions of heavy-ion fusion: from phenomenological to microscopic approaches* p20

10:10 J. M. Gates *Recent results and future prospects of super heavy element research at LBNL* p21

**10:40 – 11:15**

#### Morning Tea

**11:15 – 12:55**

#### Session 2

**Chair: Jacklyn Gates**

11:15 M. Block *Investigating atomic and nuclear properties of the heaviest elements* p22

11:40 A. S. Umar *Quasifission studies using TDHF* p23

12:05 D. Jacquet *X-Ray fluorescence technique as a probe of super-heavy systems dynamics* p24

12:30 E. Litvinova *Structure of superheavy nuclei from fundamental nucleon-nucleon interactions* p25

**12:55 – 14:00**

#### Lunch



<b>14:00 – 15:30</b>	<b>Session 3</b>	<b>Chair: Kouichi Hagino</b>
14:00 J. Kolata	<i>Near and sub-barrier fusion of <math>^8\text{B}+^{58}\text{Ni},^{28}\text{Si}</math> systems</i>	p26
14:30 M. Mazzocco	<i>Reaction dynamics for the system <math>^7\text{Be}+^{208}\text{Pb}</math> at Coulomb barrier energies</i>	p27
14:50 V. Pesudo	<i>Scattering of halo nuclei on heavy targets around the Coulomb barrier</i>	p28
15:10 K. Vo-Phuoc	<i>Fusion with exotic nuclei using microscopic methods</i>	p29
<b>15:30 – 16:00</b>	<b>Afternoon Tea</b>	
<b>16:00 – 17:30</b>	<b>Session 4</b>	<b>Chair: Birger Back</b>
16:00 T. Ichikawa	<i>Universal damping mechanism of quantum vibrations in deep sub-barrier fusion reactions</i>	p30
16:20 F. Galtarossa	<i>Fusion hindrance for the positive <math>Q</math>-value system <math>^{12}\text{C}+^{30}\text{Si}</math></i>	p31
16:40 K. Washiyama	<i>Fusion hindrance in heavy systems with time-dependent Hartree-Fock</i>	p32
17:00 G. Colucci	<i>Sub-barrier fusion of <math>^{30}\text{Si}+^{30}\text{Si}</math></i>	p33
17:20 C. Wilburn	<i>Micron Semiconductors</i>	
<b>17:30-19:30</b>	<b>Poster Session</b>	
	<i>The poster session will be held in the The Packing Room and Atrium of the Henry Jones Art Hotel.</i>	



## Tuesday, 21<sup>st</sup> February

**09:00 – 10:40**

**Session 5**

**Chair: David Hinde**

- 09:00 C. E. Düllmann *How elements up to 118 were reached — and how to go beyond* p34
- 09:25 P. Schwerdtfeger *The end of the periodic table: relativistic and quantum electro-dynamics effects in superheavy elements* p35
- 09:50 J. R. Stone *Superheavy nuclei in the Quark-Meson-Coupling model* p36
- 10:15 W. Loveland *Survival mediated heavy element capture and fusion processes* p37

**10:40 – 11:15**

**Morning Tea**

**11:15 – 12:55**

**Session 6**

**Chair: Edward Simpson**

- 11:15 K. E. Rehm *The influence of nuclear reactions and nuclear structure in as-trophysics* p38
- 11:40 A. Caciolli *Nuclear astrophysics in underground laboratories: The LUNA experiment* p39
- 12:05 T. Kawabata *Direct measurement of the  ${}^7\text{Be}(n, \alpha){}^4\text{He}$  reaction cross sections for the cosmological Li problem* p40
- 12:30 S. Courtin *How well do we understand the reaction rate of carbon burn-ing?* p41

**12:55 – 14:00**

**Lunch**

**14:00 – 15:30**

**Session 7**

**Chair: Mahir Hussein**

- 14:00 C. Simenel *Effect of Pauli repulsion and transfer on fusion* p42
- 14:25 S. Szilner *Nucleon-nucleon correlations probed at far sub-Coulomb en-ergies* p43
- 14:50 G. Scamps *Microscopic description of the transfer and fusion reactions in-cluding pairing correlations* p44
- 15:10 E. Fioretto *Study of the population of heavy neutron-rich nuclei in the  $A \sim 200$  mass region via multinucleon transfer reactions* p45

**15:30 – 16:00**

**Afternoon Tea**



**16:00 – 17:40**

**Session 8**

**Chair: Suzana Szilner**

16:00	E. Williams	<i>Exploring energy dissipation in quantum many-body systems via the <math>^{58}\text{Ni}+^{60}\text{Ni}</math> reaction</i>	p46
16:20	N. Wang	<i>Microscopic dynamics simulations of heavy-ion fusion and deep inelastic scattering</i>	p47
16:40	D. Fabris	<i>Pre-equilibrium particles emission to study clustering in nuclei</i>	p48
17:00	D. C. Rafferty	<i>Energy dissipation in multinucleon transfer reactions</i>	p49
17:20	M. Hussein	<i>Complete and incomplete fusion of three-cluster projectiles and the rôle of fragment-fragment correlations</i>	p50



## Wednesday 22<sup>nd</sup> February

<b>09:00 – 10:35</b>	<b>Session 9</b>	<b>Chair: Lorenzo Corradi</b>
09:00	W. Mittig	<i>The search for long lived very heavy systems: is it possible to find a signature?</i> p51
09:25	E. C. Simpson	<i>Classical dynamical modelling of near-barrier breakup</i> p52
09:50	F. Gramegna	<i>Clustering in light nuclei and their effects on fusion and pre-equilibrium processes</i> p53
10:15	N. T. Zhang	<i>Experimental study of <math>^{13}\text{C}+^{12}\text{C}</math> fusion reaction at deep sub-barrier energies in the underground low-background laboratory</i> p54
<b>10:35 – 11:15</b>	<b>Morning Tea</b>	
<b>11:15 – 12:55</b>	<b>Session 10</b>	<b>Chair: Makoto Ito</b>
11:15	M. La Cognata	<i>First time evidence of pronounced plateaus right above the Coulomb barrier in <math>^8\text{Li}+^4\text{He}</math> fusion</i> p55
11:35	M. Nakao	<i>Monopole transitions in two-center mirror systems</i> p56
11:55	K. J. Cook	<i>Zeptosecond dynamics in breakup and consequences for suppression of complete fusion</i> p57
12:15	R. G. Pizzone	<i>Fusion reactions induced by radioactive beams: the <math>^{18}\text{F}(p,\alpha)^{15}\text{O}</math> case</i> p58
12:35	V. V. Parkar	<i>Exploring incomplete fusion fraction in <math>^{6,7}\text{Li}</math> induced nuclear reactions</i> p59
<b>12:55</b>	<b>Conference Photo</b>	
<b>13:00 – 14:00</b>	<b>Lunch</b>	



**14:00 – 15:30**

**Session 11**

**Chair: Shan-Gui Zhou**

- 14:00 S. Pullanhiotan *Recent results from fusion-fission study at IUAC, New Delhi* p60
- 14:25 A. Karpov *Dynamics of near-barrier nucleus-nucleus collisions leading to formation of exotic nuclei* p61
- 14:50 C. Parascandolo *Evidence of dynamical dipole mode excitation in the  $^{40,48}\text{Ca}+^{152,144}\text{Sm}$  fusion-evaporation and fission reactions at 11 MeV/nucleon* p62
- 15:10 C. J. Lin *Fusion-fission reactions of  $^{32}\text{S}+^{170}\text{Er}$  and  $^{28}\text{Si}+^{174}\text{Yb}$  systems at near- and sub-barrier energies* p63

**15:30 – 16:00**

**Afternoon Tea**

**16:00 – 17:20**

**Session 12**

**Chair: Aurel Bulgac**

- 16:00 L. Guo *The role of tensor force in heavy-ion fusion dynamics* p64
- 16:20 Khushboo *Influence of neutron transfer channels on fusion enhancement in sub-barrier region* p65
- 16:40 H. M. Jia *Near-barrier fusion of the Sn-involved systems* p66
- 17:00 P. D. Stevenson *Exploration of effective interaction effects near the barrier* p67

**18:00**

**Buses leave for the conference dinner**

**19:00**

**Conference dinner at Frogmore Creek**



## Thursday, 23<sup>rd</sup> February

<b>09:00 – 10:45</b>	<b>Session 13</b>	<b>Chair: Dominique Jacquet</b>
09:00	K. Nishio	<i>Study of fission using multi-nucleon transfer reactions</i> p68
09:25	B. Schuetrumpf	<i>Twist-averaged boundary conditions and the nucleonic localization function for the nuclear density functional theory</i> p69
09:45	E. Prasad	<i>Fission measurements for the reactions forming Os, Pt, Hg and Pb compound systems</i> p70
10:05	M. Caamaño	<i>Fission in inverse kinematics: a path to new experimental observables</i> p71
10:25	S.-G. Zhou	<i>Fission barriers from multidimensionally-constrained covariant density functional theories</i> p72
<b>10:45 – 11:15</b>	<b>Morning Tea</b>	
<b>11:15 – 13:00</b>	<b>Session 14</b>	<b>Chair: Chengjian Lin</b>
11:15	Ch. Theisen	<i>Perspectives of SHN research with the upcoming separator-spectrometer setup S3 at GANIL/SPIRAL2</i> p73
11:40	T. Tanaka	<i>Study of barrier distribution in heavy reaction system at the RIKEN-GARIS</i> p74
12:00	J. Khuyagbaatar	<i>Reaction studies to identify the most promising route to superheavy elements beyond Z=118</i> p75
12:20	K. Sekizawa	<i>Solitonic excitations in collisions of superfluid nuclei</i> p76
12:40	Y. Aritomo	<i>Possibility of synthesizing superheavy nuclei at the center of island stability</i> p77
<b>13:00 – 14:00</b>	<b>Lunch</b>	



**14:00 – 15:30**

**Session 15**

**Chair: Anjali Mukherjee**

- 14:00 R. T. deSouza *Measuring the fusion cross-section for neutron-rich light nuclei at near and sub-barrier energies* p78
- 14:25 A. Di Pietro *A new analysis procedure to extract fusion excitation functions with large beam energy dispersions: application to the  ${}^6,7\text{Li}+{}^{120,119}\text{Sn}$  case* p79
- 14:50 G. Fruet *Fusion cross section measurements of astrophysical interest for light heavy ions systems within the STELLA project* p80
- 15:10 I. P. Carter *Radioactive ion beam capability at the Australian National University* p81

**15:30 – 16:00**

**Afternoon Tea**

**16:00 – 17:40**

**Session 16**

**Chair: Marco Mazzocco**

- 16:00 M. La Commara  *${}^8\text{B}+{}^{208}\text{Pb}$  elastic scattering at coulomb barrier energies* p82
- 16:20 Sunil Kalal *Break-up reaction mechanism in interactions with  ${}^6\text{Li}$*  p83
- 16:40 G. L. Zhang *Study of breakup and transfer of weakly bound nucleus  ${}^6\text{Li}$  to explore the low energy reaction dynamics* p84
- 17:00 A. Mukherjee *Study of quasi-elastic scattering at back angles for weakly bound systems at near-barrier energies* p85
- 17:20 E. F. Aguilera *Fusion and elastic scattering of  ${}^6\text{Li}+{}^{58}\text{Ni}$  at low energies* p86





## Friday 24<sup>th</sup> February

<b>09:00 – 10:40</b>	<b>Session 16</b>	<b>Chair: Wolfgang Mittig</b>
09:00 D. Bazin	<i>The active target time projection chamber at NSCL</i>	p87
09:25 B. B. Back	<i>The AGFA and AIRIS separators at ATLAS</i>	p88
09:50 A. Wallner	<i><math>^{60}\text{Fe}</math> and <math>^{244}\text{Pu}</math> in deep-sea archives – monitors of nearby supernova activity and rprocess sites</i>	p89
10:15 A. Bulgac	<i>Nuclear fission: from more phenomenology and adjusted parameters to more fundamental theory and increased predictive power</i>	p90
<b>10:40 – 11:15</b>	<b>Morning Tea</b>	
<b>11:15 – 12:35</b>	<b>Session 17</b>	<b>Chair: Mahananda Dasgupta</b>
11:15	<i>Presentation of awards</i>	
11:25	<i>FUSION20 host country announced</i>	
11:30	<i>FUSION20 organizers presentation</i>	
11:35 D. Ackermann and L. Corradi	<i>Past and present achievements: windsurfing on a cross section profile</i>	
<b>12:15</b>	<b>Lunch</b>	



## Poster Programme

The poster session will be held on Monday 20 February from 17:30 – 19:30. The venue will be the Atrium Courtyard, on the ground floor of the Henry Jones Hotel.

1	L. T. Bezzina	<i>Determination of Precision Fusion Cross Section Using a High Efficiency Superconducting Solenoidal Separator</i>	p92
2	S. Chopra	<i>Role of neutron-rich fragments in the synthesis of Z=122, A=306 compound system within the dynamical cluster-decay model</i>	p93
3	S. Chopra	<i>Study of the decay of <math>^{220}\text{Th}^*</math> compound nucleus formed via different entrance channels</i>	p94
4	G. Colucci	<i>A fast ionization chamber for the study of fusion reactions induced by low-intensity radioactive ion beams</i>	p95
5	Z.-Q. Feng	<i>Production of neutron-rich isotopes around N=126 and N=162 in multinucleon transfer reactions</i>	p96
6	M. Ito	<i>Evidence of enhanced <math>3\alpha</math> radius in <math>\alpha+^{12}\text{C}</math> inelastic scattering</i>	p97
7	D. Y. Jeung	<i>Suppression of fusion by 3-body fission in heavy element formation reactions</i>	p98
8	E. McRae	<i>Reactions of exotic nuclei with the quark-meson coupling model</i>	p99
9	F. Minato	<i>Interference effect between neutron direct and resonance capture reactions for neutron-rich nuclei</i>	p100
10	R. Mittal	<i>Effect of deformations and orientations on spin density dependent term</i>	p101
11	C. S. Palshetkar	<i>Investigating fusion dynamics at high angular momentum via fission cross-sections</i>	p102
12	M. K. Sharma	<i>Pre-compound emission in low-energy heavy-ion interactions</i>	p103
13	V. R. Sharma	<i>Effect of projectile on incomplete fusion reactions at low energies</i>	p104
14	S. Zemlyanoy	<i>Production and investigation of heavy neutron rich nuclei</i>	p105

## FUSION17 Programme 20<sup>th</sup>-24<sup>th</sup> February 2017

	<b>Monday 20/02</b>	<b>Tuesday 21/02</b>	<b>Wednesday 22/02</b>	<b>Thursday 23/02</b>	<b>Friday 24/02</b>
09:00	A. E. Stuchbery	09:00 C. E. Düllmann	09:00 W. Mittig	09:00 K. Nishio	09:00 D. Bazin
09:05	M. Dasgupta	09:25 P. Schwerdtfeger	09:25 E. C. Simpson	09:25 B. Schuetrumpf	09:25 B. B. Back
09:10	M. Thoennesen	09:50 J. R. Stone	09:50 F. Gramegna	09:45 E. Prasad	09:50 A. Wallner
09:40	K. Hagino	10:15 W. Loveland	10:15 N. T. Zhang	10:05 M. Caamaño	10:15 A. Bulgac
10:10	J. M. Gates			10:25 S.-G. Zhou	
10:40	Morning Tea	10:40 Morning Tea	10:35 Morning Tea	10:45 Morning Tea	10:40 Morning Tea
11:15	M. Block	11:15 K. E. Rehm	11:15 M. La Cognata	11:15 Ch. Theisen	11:15 Awards
11:40	A. S. Umar	11:40 A. Caciolli	11:35 M. Nakao	11:40 R. Tanaka	11:25 FUSION20
12:05	D. Jacquet	12:05 T. Kawabata	11:55 K. J. Cook	12:00 J. Khuyagbaatar	11:35 D. Ackermann
12:30	E. Litvinova	12:30 S. Courtin	12:15 R. G. Pizzone	12:20 K. Sekizawa	and L. Corradi
			12:35 V. V. Parkar	12:40 Y. Aritomo	
12:55	Lunch	12:55 Lunch	12:55 Conf. Photo, Lunch	13:00 Lunch	12:15 Lunch
14:00	J. Kolata	14:00 C. Simenel	14:00 S. Pullanhiotan	14:00 R. T. deSouza	
14:30	M. Mazzocco	14:25 S. Szilner	14:25 A. Karpov	14:25 A. Di Pietro	
14:50	V. Pesudo	14:50 G. Scamps	14:50 C. Parascandolo	14:50 G. Fruet	
15:10	K. Vo-Phuoc	15:10 E. Fioretto	15:10 C. J. Lin	15:10 I. P. Carter	
15:30	Afternoon Tea	15:30 Afternoon Tea	15:30 Afternoon Tea	15:30 Afternoon Tea	
16:00	T. Ichikawa	16:00 E. Williams	16:00 L. Guo	16:00 M. La Commara	
16:20	F. Galtarossa	16:20 N. Wang	16:20 Khushboo	16:20 Sunil Kalkal	
16:40	K. Washiyama	16:40 D. Fabris	16:40 H. M. Jia	16:40 G. L. Zhang	
17:00	G. Colucci	17:00 D. C. Rafferty	17:00 P. D. Stevenson	17:00 A. Mukherjee	
17:20	C. Wilburn	17:20 M. Hussein		17:20 E. F. Aguilera	
17:30	Poster Session Drinks and refreshments		18:00 Buses depart to conference dinner		