

NuPECC Long Range Plan 2024
TWG4 – Nuclear Astrophysics

INTRODUCING TWG4 – NUCLEAR ASTROPHYSICS



Jordi José

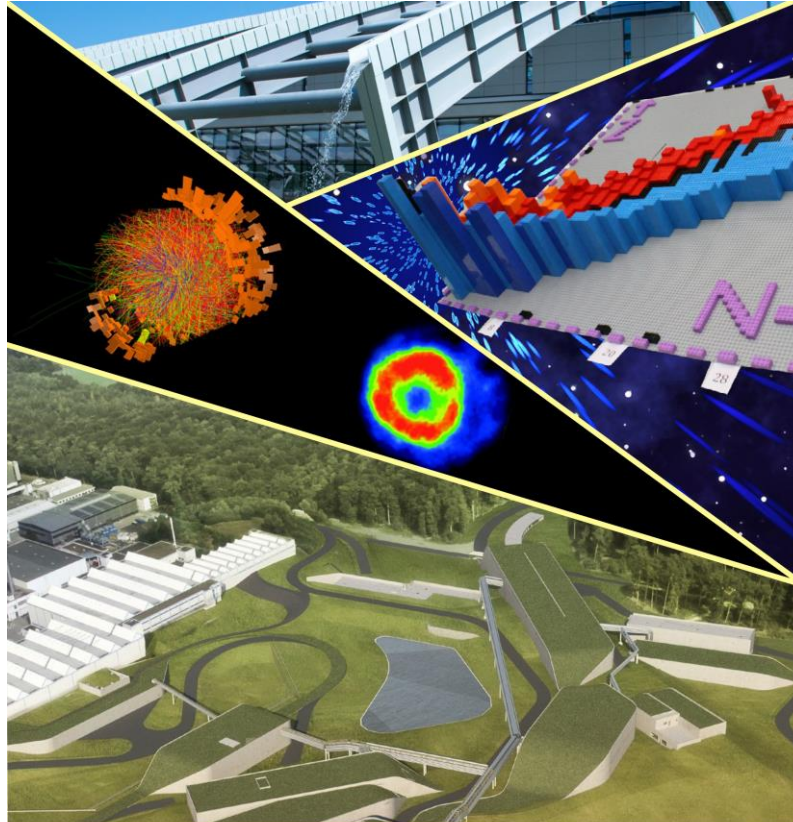
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INTRODUCING TWG4 – NUCLEAR ASTROPHYSICS

LRP 2017 || LRP 2024



Jordi José



NuPECC



NuPECC
Long Range Plan 2017
Perspectives
in Nuclear Physics

Contents

FOREWORD	3
INTRODUCTION	4
SUMMARY AND RECOMMENDATIONS	4
THE SCIENCE	6
THEORY AND COMPUTING	12
EDUCATION	12
INTERNATIONAL CONTEXT	13
ENSAR2	13
Transnational Access	14
Joint Research Activities	14
Networking Activities	14
RESEARCH INFRASTRUCTURE AND NETWORKING	16
EXISTING RESEARCH INFRASTRUCTURES AND UPGRADES	17
Theory and Computing.....	17
ECT*, Trento, Italy.....	17
European Computing Infrastructure.....	17
National HPC resources	17
Lepton Beam Facilities.....	19
COMPASS, CERN, Switzerland.....	19
ELSA, Bonn, Germany.....	19
INFN-LNF, Frascati, Italy.....	20
MAMI, Mainz, Germany.....	21
Hadron Beam Facilities	22
ALICE, CERN, Switzerland	22
Antiproton Decelerator (AD), CERN, Switzerland	22
ALTO, Orsay, France.....	23
CCB, IFJ PAN, Krakow, Poland.....	24
COSY, Jülich, Germany.....	25
GANIL, Caen, France.....	25
GSI, Darmstadt, Germany	27
HIL, Warsaw, Poland.....	29
IFIN-HH, Bucharest-Magurele, Romania	30
ILL, Grenoble, France	30
ISOLDE, CERN, Switzerland	31
JYFL, Jyväskylä, Finland.....	33
KVI-CART, Groningen, The Netherlands	34
LNL, Legnano, Italy.....	34
LNS, Catania, Italy.....	36

PSI, Villigen, Switzerland.....	36
FUTURE RESEARCH INFRASTRUCTURES	37
ESFRI Roadmap Facilities	37
ELI-NP, Bucharest, Romania.....	37
FAIR, Darmstadt, Germany.....	38
NICA, Dubna, Russia.....	39
SPIRAL2, Caen, France.....	40
NEW FACILITIES AND MAJOR UPGRADES OF EXISTING FACILITIES	42
The ALICE Upgrade.....	42
The HIE-ISOLDE upgrade	42
SHE Factory, Dubna, Russia.....	43
SPES, Legnano, Italy	44
PLANNED AND RELEVANT NEW FACILITIES	45
The European Spallation Source – ESS	45
EURISOL Distributed Facility	45
IFMIF-DONES.....	46
MYRRHA, Mol, Belgium.....	46
SMALL-SCALE ACCELERATOR FACILITIES	47
1. HADRON PHYSICS	53
INTRODUCTION	53
THEORETICAL FRAMEWORK	54
EXPERIMENTAL METHODS	56
HADRON SPECTROSCOPY	57
Recent Achievements and Hot Topics	57
Future Prospects.....	60
HADRON STRUCTURE	61
Recent achievements and state of the art.....	62
Electromagnetic form factors and the proton radius puzzle.....	62
Nucleon form factors.....	62
Baryonic transition form factors.....	63
Polarisabilities.....	63
Parton Distribution Functions	64
Generalised Parton Distributions (GPDs) and Transverse Spin and Momentum-Dependent Distributions (TMDs)	65
Future Prospects.....	67
HADRONIC INTERACTIONS	67
Recent Achievements, Hot Topics and Future Prospects.....	67
LATTICE QCD	70
PHYSICS PERSPECTIVES	71
European Perspectives	71
COMPASS @ CERN	71
ELSA @ Bonn.....	71

MAMI @ Mainz	72
HADES @ GSI and FAIR	72
PANDA @ FAIR	72
LHC @ CERN	72
NICA @ JINR	72
Global perspectives	72
JLab, Newport News, VA, United States	72
BESIII, Beijing, China	73
BELLE2, Tsukuba, Japan	73
RECOMMENDATIONS	73
First recommendation: Completion of the PANDA experiment at FAIR without further delays	73
Second recommendation: Support for a research programme in precision physics at existing facilities	74
Third recommendation: Support for theory and computing	74

2. PROPERTIES OF STRONGLY INTERACTING MATTER AT EXTREME CONDITIONS OF TEMPERATURE AND BARYON NUMBER DENSITY 79

INTRODUCTION	79
HIGH-TEMPERATURE MATTER	82
Recent Experimental and Theoretical Developments	83
Future Plans and Expected Developments	87
HIGH-DENSITY MATTER	88
EXPERIMENTAL HANDLES FOR THE EXPLORATION OF THE QCD PHASE DIAGRAM	88
Current experimental activities	92
Future plans	92
PERSPECTIVES ON FACILITIES, COMPUTING AND INSTRUMENTATION	94
Computing Resources	98
Forthcoming Detector Challenges and New Instrumentation	99
RECOMMENDATIONS	100
Experimental programme	100
Theory developments	101

3. NUCLEAR STRUCTURE AND REACTION DYNAMICS 105

INTRODUCTION	105
NUCLEAR THEORY	105
Achieving a unified description of all nuclei	106
Towards consistent reaction theory	108
Computational challenges to reach the scientific goals of nuclear physics	109
The precision era of nuclear theory	109
Open issues and perspectives	110

NUCLEAR STRUCTURE	110
Hypernuclei	110
Resonances in neutron-rich nuclei	111
Electroweak reactions	111
Exploration towards the drip lines	112
Comprehensive spectroscopy	112
Heavy and superheavy elements	113
How complex are nuclear excitations? Coupling between nucleons and core-excitations	114
Giant Resonances	115
REACTION DYNAMICS	120
Investigation of correlations by means of transfer and knockout reactions	120
Modelling fusion	120
Interfacing structure with reaction observables	121
Accessing structures beyond the proton/neutron driplines	122
Accessing extreme deformations and rare fission modes	123
THE NUCLEAR EQUATION OF STATE	124
The density dependence of the equation of state (EoS): incompressibility and symmetry energy	125
The density dependence of the Symmetry Energy	125
Investigations around saturation densities	126
Investigations away from saturation densities: heavy-ion collisions	126
Sub-saturation densities	126
Interplay of EoS and structure properties	127
Supra-saturation densities	127
Open issues and perspectives	128
FACILITIES AND INSTRUMENTATION	128
Radioactive beam facilities	128
Stable ion beam facilities and other techniques	129
Instrumentation	130
Separators, spectrometers and associated detection for nuclei identification	130
Detectors for structure and dynamic studies	131
Training the next generation of researchers in nuclear physics	133
Recommendations	134
Radioactive ion beam facilities	134
Stable ion and photon beam facilities	134
Instrumentation	134
Theory	134

4. NUCLEAR ASTROPHYSICS 139

INTRODUCTION	139
THE LIFE CYCLE OF MATTER	140
Big Bang nucleosynthesis	140
Lives of stars	141
Hydrogen burning	142
Helium burning	143
Advanced burning phases	144

Neutron capture nucleosynthesis	144
Evidence for additional nucleosynthesis processes	147
Stellar explosions	148
Nucleosynthesis in supernovae	149
Stars reborn	151
Classical novae and x-ray bursts	151
Matter at extreme conditions: neutron stars	152
ASTRONOMICAL OBSERVATIONS	154
REQUIREMENTS FOR NUCLEAR EXPERIMENT, AND THEORY	156
Experimental opportunities	156
Accelerator facilities	156
Developments in nuclear theory	161
Observational developments	163
Developments in astrophysical modelling	163
Perspectives	166
Recommendations	167
5. SYMMETRIES AND FUNDAMENTAL INTERACTIONS	173
INTRODUCTION	173
SM PARAMETERS	174
Leptons	174
Neutrinos	175
Charged leptons and fundamental constants	176
Baryons	177
Semileptonic decays	177
Quark mixing matrix	178
Nucleon and nuclear properties from low-energy measurements	180
SEARCHES BEYOND THE SM	182
Fundamental-symmetry tests	182
Dark Matter, Dark Energy and exotic forces	185
Direct Search for Dark Matter Particles	186
Test of Dark Energy models with precision experiments	187
Exotic forces	187
Temporal and spatial variation of fundamental constants	188
PERSPECTIVES	188
Electroweak Interaction	189
Neutrinos	189
Fundamental Symmetries	189
RECOMMENDATIONS	189
6. APPLICATIONS AND SOCIETAL BENEFITS	195

INTRODUCTION	195
ENERGY APPLICATIONS	195
Next-generation fission reactors	195
Accelerator Driven sub-critical Systems	197
Fusion reactors	197
Nuclear power sources for space applications	198
Perspectives and needs	199
HEALTH APPLICATIONS	199
Particle therapy	200
Imaging	201
Radioisotope production	203
Radio-isotopes for therapy	203
The theranostic approach	204
Production and mass separation techniques	204
Radioprotection	205
Perspectives and needs	205
ENVIRONMENTAL AND SPACE APPLICATIONS	205
Climate and Earth science	206
Urban pollution	206
Natural aerosol	207
Climate	207
Ocean acidifications	207
Paleoclimatic studies	207
Perspectives and needs	208
Environmental radioactivity	208
Perspectives and needs	209
Space radiations	209
Space radiation characterization and dosimetry	209
Ground-based research	210
Cosmic ray physics	210
Space weather, Earth magnetosphere	211
SOCIETAL APPLICATIONS	211
Heritage science	211
Ion beam analytical techniques	211
Neutron techniques	212
Carbon dating and preservation of cultural and natural heritage	212
Complementary gamma-ray techniques	212
Access to analytical facilities	212
Perspectives and needs	213
Nuclear security and counter terrorism	213
Improved radiation detection systems	213

List-mode data acquisition based on digital electronics	214
Remote-controlled radiation measurements	214
Reachback and expert support.....	214
Nuclear Forensics.....	214
Perspectives and needs.....	215
CROSS-DISCIPLINARY IMPACT.....	216
Materials sciences.....	216
Atomic and Plasma physics.....	218
SUMMARY	220
Perspectives and needs.....	220
NuPECC LRP Town Meeting January 2017	222
List of Acronyms and Abbreviations.....	223
Contributors	227



NuPECC Long Range Plan 2024

TWG 1 Hadron Physics

TWG 2 Strongly Interacting Matter under Extreme Conditions

TWG 3 Nuclear Structure and Reaction Dynamics

TWG 4 Nuclear Astrophysics

TWG 5 Symmetries and Fundamental Interactions

TWG 6 Infrastructures

TWG 7 Applications and Societal Benefits

TWG 8 Nuclear Physics Tools

TWG 9 Open Science and Data

TWG 10 Nuclear Science - People and Society



TWG4 – Nuclear Astrophysics

Coordinators

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TWG4 – Members

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→ liaison to TWG6 - Infrastructures

TWG4 Members Geographical Distribution

2+2+21

Belgium: 1

Finland: 1

France: 6

Germany: 8

Hungary: 2

Italy: 2

Norway: 1

Spain: 2

UK: 2

TWG4 Members Gender Distribution

F: 9 (36%)

M: 16





TWG4 Members Theory vs Experiments

Theorists (including Astro Modelers): 8 (32 %)
Experimentalists: 17





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→ liaison to TWG6 - Infrastructures

Main research topics (keywords) covered by the TWG members

AGB stars

BBN

Dark matter (and experimental particle physics)

Galactic chemical evolution; Galactic structure and formation

Gamma-ray astronomy

Kilonovae

Masses: atomic mass spectroscopy, storage rings...

Methods: direct and indirect, activation measurements, resonant elastic scattering, Trojan horse....

Neutrinos

Neutron stars (EOS)

Novae

Nuclear reactions and nuclear processes: i-, r-, s-, p-... (n-TOF, neutron-capture reactions, charged-particle interactions...); nuclear fission

Nucleosynthesis (hydrostatic, explosive)

Presolar grains

Stellar evolution: modeling (codes, e.g. MESA, NUGRID)

Stellar mergers

Supernovae (types I & II)

X-Ray Bursts

Underground measurements (LUNA, Felsenkeller)

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