

Dr. Dieter Ackermann

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Email office	dieter.ackermann@ganil.fr
Email private	dieter@dieter-ackermann.eu
Birthday	30/01/1960
Nationality	German

Professional Experience

- 12/2016 – present **Ingenieur chercheur/senior scientist CEA - GANIL, Caen (France)**
Groupe Physique of GANIL
Activity sector
- Separator/spectrometer project S³ at SPIRAL2
Scientific and technical responsibility
 - Local Scientific coordinator and coordinator of the Work Package Physics of the New GANIL/SPIRAL injector project NEWGAIN
 - Scientific coordinator of experiments on the spectroscopy of heavy and superheavy nuclei
 - Coordinator of the development of an actinide target system
 - “Physicien d’accueil” of S³
- Mission regarding techniques and management
- Coordination of the “S3 Team Physique” at GANIL
 - Coordination of the design, fabrication etc. of the actinide target station
 - Focal plane detection SIRIUS
 - Development of an X-ray detection system for Z-identification of superheavy nuclei (SHN)
 - Supervision/review of the detection and electronics system of the SIRIUS array
 - Participation in the test and commissioning phase of SIRIUS at GANIL
- “Physicien d’accueil”:
- Participation in the working group “commissioning and exploitation of S³”
 - Definition of scientific objectives on the basis of technical capabilities available for experiment preparation and planning, starting from letters of intent
 - Definition of the commissioning steps regarding heavy ion reactions for qualification and characterization of the S³ detection system
 - Preparation of the scientific exploitation of S³
- 02/2016 – 04/2018 Beam coordinator of the GANIL cyclotron facilities
05/2015 – 12/2016 Enhanced EUROTALENTS fellow CEA/EU - **GANIL, Caen (France)**
Activity description see above
- 05/2015 – 12/2016 Senior Scientist on leave - **GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt (Germany)**

04/2006 – 05/2015 Senior Scientist - **GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt (Germany)**
 09/2005 – 03/2006 Scientist - **GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt (Germany)**

Department: SHE Physics

- Experiments on Synthesis and decay spectroscopy of heavy and superheavy nuclei
- Development and construction of detector and data acquisition systems for the velocity filter SHIP and the gas-filled separator TASCA
- Preparation of reaction products for high precision mass measurements in the Penning trap system SHIPTRAP and coordination of its connection to SHIP
- Supervision of graduate students and postdocs
- Coordination of planning and development for the Low Energy Branch (LEB) energy buncher and spectrometer system at the SuperFRS for FAIR

2/1999 – 08/2005 Scientist - **Johannes Gutenberg-Universität, Mainz (Germany)**

Department: WA Quantum/GSI KP2 (SHIP group)

- Experiments on Synthesis and decay spectroscopy of heavy and superheavy nuclei
- Experiments on heavy ion reaction mechanism at the Tandem/Linac facility Laboratori Nazionali di Legnaro, Legnaro, Italy
- Development and construction of detector and data acquisition systems for the velocity filter SHIP and the gas-filled separator TASCA
- Preparation of reaction products for high precision mass measurements in the Penning trap system SHIPTRAP and coordination of its connection to SHIP
- Supervision of graduate students and postdocs
- Organization and conduction of lectures and seminars in cooperation with the faculty group leader

01/1997 – 12/1998 Scientist - **Laboratori Nazionali di Legnaro, Legnaro (PD) (Italy)**

Department: Nuclear Reaction Mechanism

- Experiments on heavy ion fusion and multi-nucleon transfer reaction
- Ion optical design of the magnetic spectrometer PRISMA
- Development of transmission detectors (on micro-channel plate basis) for ion tracking in PRISMA

06/1995 – 12/1996 Postdoctoral Research Fellow - **Argonne National Laboratories, Argonne IL (U.S.A.)**

Department: Physics Division

- Reaction mechanism studies employing the compound nucleus spin distribution
- Nuclear astrophysics experiments on features of stellar nucleo-synthesis
- Nuclear structure investigation on super-deformation in heavy nuclei

Academic Career

1995 **Ph.D.** – **Technical University Darmstadt, Darmstadt (Germany)**
 1994 **Laurea** – **University of Padova, Padova (Italy)**
 1989 **Diplom** – **Technical University Darmstadt, Darmstadt (Germany)**

Teaching

since 2021 Supervision Ph.D. student Hope Donglo (Université Caen Normandie)
 since 2019 Supervision Ph.D. student Ablaihan Utepov (Université Caen Normandie)
 2018-2020 Supervision Ph.D. student Quentin Hourdille (Université Caen Normandie)
 2018 Lecture und student supervision (masters1 internship), ERASMUS MUNDUS program, University of Normandie Caen
 2017 Pisa Summer School *Rewriting Text Books*, Pisa, Italy, July 24th – 28th
 2015 Lecture as *visiting scientist*, University of Padova
 2014 Lecture as *visiting scientist*, University of Padova

2013	Lecture as <i>visiting scientist</i> , University of Padova
2011	Helmholtz Graduate School HGS-hire Lecture week, Schöntal, Germany
2009	Lecture, 8 th European Summer University in Strasbourg, France
2005	Lecture, Helmholtz International Summer School, JINR, Dubna, Russia
1999-2010	Lectures, seminar supervisor, Johannes Gutenberg-Universität Mainz
1993	Lectures and exercises, University of Padova

Organization of Meetings

2016	S ³ Meeting during the III rd Topical Workshop on Modern Aspects in Nuclear Structure, in Bormio, Italy, 22 nd – 28 th February 2016 (organizer)
2014	EURISOL Topical Meeting, York, U.K. (organizing committee)
2013	ECOS-LYNCE Workshop, Huelva, Spain (organizing committee)
2013	EURISOL Topical Meeting, Krakow, Poland (organizing committee)
2012	EURISOL Topical Meeting, Lisbon, Portugal (organizing committee)
2012	Ecole Joliot-Curie, Frejus, France (organizing committee)
2012	FUSHE 2012, ENSAR ECOS Workshop on the Future of Superheavy Element Strategy (chair)
2011	EURISOL Topical Meeting, Valencia, Spain (organizing committee)
2011	Colloque GANIL, Belgodere, Corsica (organizing committee)

Participation in International Conferences and Meetings (invited talks and convenership) since 2011

2020	V th Topical Workshop on Modern Aspects in Nuclear Structure – The many Facets of Nuclear Structure, Bormio, February 4 th – 9 th
2019	Nuclear Structure and Dynamics – NSD 2019, 13 th – 17 th May 2019, Venice, Italy
2019	Joint LIA COLL-AGAIN, COPIGAL, and POLITA Workshop, Warsaw, Poland, March 5 th – 7 th 2019
2018	XXV Nuclear Physics Workshop, Kazimierz Dolny, Poland, September 25 th – 30 th
2018	IX International Symposium on EXOTic Nuclei (EXON-2018), Petrozavodsk, Russia, September 10 th – 15 th
2018	Zakopane Conference on Nuclear Physics – Extremes of the Nuclear Landscape, Zakopane, Poland, August 31 st – September 7 th
2018	Workshop on decay spectroscopy of the heaviest elements and related topics, Stralsund, Germany, May 7 th – 9 th
2018	IV th Topical Workshop on Modern Aspects in Nuclear Structure - Advances in Nuclear Structure at Extreme Conditions, Bormio, February 19 th – 25 th
2017	SHE 2017, Kazimierz-Dolny, Poland, September 11 th – September 13 th
2017	Chamrousse, France, March 20 th – 24 th 2017
2017	FUSION17, Hobart, Tasmania, February 20 th – 24 th 2017
2016	6 th Workshop on Nuclear Fission and Spectroscopy of Neutron-Rich Nuclei, 6 th International Conference on "Fission and Properties of Neutron-Rich Nuclei" (ICFN6) Sanibel Island FL, U.S.A., November 6 th – 12 th ,
2016	XIII Nuclear Physics Workshop, Kazimierz Dolny, Poland, September 27 th – October 2 nd
2016	III rd Topical Workshop on Modern Aspects in Nuclear Structure - Advances in Nuclear Structure at Extreme Conditions, Bormio, February 22 nd - 28 th
2015	XIX th COLLOQUE GANIL, Anglet (Aquitaine – France) 12 th - 16 th October
2014	Zakopane Conference on Nuclear Physics – Extremes of the Nuclear Landscape, Zakopane, Poland, August 31 st – September 7 th
2014	II nd Topical Workshop on Modern Aspects in Nuclear Structure - Advances in Nuclear Structure at Extreme Conditions, Bormio, Italy, 19 th – 22 nd February
2013	XXXIV Mazurian Lakes Conference on Physics Frontiers in Nuclear Physics, Piaski, Poland, September 1 – 7
2013	EURISOL Topical Meeting, Krakow, Poland, July 1 – 3
2013	Gordon Conference: Nuclear Chemistry, Colby-Sawyer College in New London NH, U.S.A., June 9 - 14
2012	EURORIB'12, Abano Terme (Padova), Italy, May 20-25 May

2012	FUSHE 2012 – ENSAR-ECOS Workshop on Future SuperHeavy Element Strategy, Erbismühle – Weilrod, Germany - May 13 – 16
2012	50. International Winter Meeting on Nuclear Physics, Bormio, Italy, January 23- 27
2011	TAN 2011, The 4 th International on the Chemistry and Physics of Transactinide Elements, Sochi, Russia, September 5 - 11
2011	YKIS2011 Symposium, Frontier Issues in Physics of Exotic Nuclei, Kyoto, Japan, October 11 - 15

Awards, Grants and Fellowships

05/2015-12/2016(05/18)	Enhanced Eurotalents fellowship of CEA and European Commission
06-07/2015	Visiting Scientist at University of Padova, Italy
06-07/2014	Visiting Scientist at University of Padova, Italy
2014	20 th Prof. S.D. Chatterjee Endowment Lecture, Ind. Phys. Soc., Kolkata, India
04/2013-05/2013	Visiting Scientist at University of Padova, Italy
1993-1194	INFN fellowship for foreigners
1990-1992	Fellowship of the European Commission
1990	INFN fellowship for foreigners

Membership

Deutsche Physikalische Gesellschaft

Committees and Councils

since 2020	PLPAC TIFR-BARC, Mumbai, India
since 2020	GANIL Scientific Coordinator and Physics WP Leader of NEWGAIN (A/q=7 injector project for SPIRAL2 @ GANIL)
since 2016	NP-PAC RIKEN, Wako (Tokyo), Japan
2013-?	Scientific Council LYNCE project, University of Huelva, Spain
2012-2015	Wissenschaftlich-Technischer Rat der GSI (elected member)
2012-2016	PAC, Laboratori Nazionali di Legnaro, Legnaro (PD), Italy
2011-2019	Scientific Council IPHC, Strasbourg, France
2010-2016	ENSAR ECOS Steering Committee
2009-2016	Scientific Council GANIL, Caen, France
2009-2011	Wissenschaftlicher Ausschuss der GSI (appointed member)
2008-2015	EURISOL User Executive Committee,
2008/2009	GANIL Forward Look FORUM
2004/2005	SPIRAL 2 White Paper writing group (GANIL)
1999/2000	VAMOS Steering Committee (GANIL)

Referee

Acta Physica Slovaca
Acta Physica Polonica
European Physical Journal A
European Physical Journal P
Journal of Physics G
Nuclear Instruments and Methods in Physics Research A
Nuclear Physics A
Physical Review C
Physical Review Letters
European Research Council
Engineering and Physical Sciences Research Council, U.K.
Agence National de la Recherche, France

Croatian Science Foundation, Croatia

Ph.D. Supervision

since 2021 Hope Donglo, Université Caen Normandie, France
since 2019 Ablaihan Utepov, Université Caen Normandie, France
2017-2020 Quentin Hourdille, Université Caen Normandie, France

2011 Khuyagbaatar Jadamba, St. Petersburg State University, Russia*
2007 Barbara Sulignano, Johannes Gutenberg-Universität Mainz, Germany*
*(local co-supervisor GSI)

Ph.D. Examiner

2016 Rafaël Briselet, Université Paris-Saclay – Université Paris Sud, France
2015 Hongliang Lü, Université Caen Normandie, France
2013 Jérôme Rubert, Université Louis Pasteur Strasbourg, France
2012 Fabien Dechery, Université Paris Diderot (Paris 7), France
2005 Ari-Pekka Leppänen, University of Jyväskylä, Finland
1999 Sandrine Courtin, Université Louis Pasteur Strassbourg, France

Habilitation Examiner

2012 Antoine Drouart, Université de Paris, France

Languages

German: Mother Tongue
English: Proficient User
Italian: Proficient User
French: Proficient User
Polish: Basic User

Selected Publications

NEWGAIN White Book – Science Requirements – Work Package Physics

D Ackermann, B Blank, L Caceres, M Caamaño, G De France, B Gall, ...

GANIL-document link: <https://www.ganil-spiral2.eu/scientists/ganil-spiral-2-facilities/accelerators/newgain/>
<https://tel.archives-ouvertes.fr/IP2I/hal-03280595v1> (2021)

Nuclear structure features of very heavy and superheavy nuclei—tracing quantum mechanics towards the 'island of stability'

D Ackermann, C Theisen

Physica Scripta 92 (8), 083002 (2017)

COMPASS - A COMPACT decay Spectroscopy Set-up

D Ackermann, AK Mistry, FP Heßberger, B Andel, S Antalic, M Block, ...

Nucl. Instrum. Methods Phys. Res. A 907, 81-89 (2018)

The darmstadtium cornerstone

D Ackermann

Nature chemistry 9 (10), 1034 (2017)

Nuclear spectroscopy in nuclei with $Z \geq 110$

D Ackermann

Nuclear Physics A 944, 376-387 (2015)

Publications 2016-2021

Citation summary (google scholar)	All	since 2016
Citations	10547	3925
h-index	54	31

2021

Impact of shell structure on the fusion of neutron-rich mid-mass nuclei

Varinderjit Singh, JE Johnstone, R Giri, S Hudan, J Vadas, RT Desouza, **D Ackermann**,
A Chbihi, Q Hourdille, A Abbott, C Balhoff, A Hannaman, AB McIntosh, M Sorensen,
Z Tobin, A Wakhle, SJ Yennello, MA Famiano, KW Brown, C Santamaria, J Lubian,
HO Soler, BV Carlson

NEWGAIN White Book – Science Requirements – Work Package Physics

D Ackermann, B Blank, L Caceres, M Caamaño, G De France, B Gall, ...

GANIL-document link: <https://www.ganil-spiral2.eu/scientists/ganil-spiral-2-facilities/accelerators/newgain/>
<https://tel.archives-ouvertes.fr/IP2I/hal-03280595v1>

Alpha-decay spectroscopy of ^{257}Rf

K Hauschild, A Lopez-Martens, R Chakma, O Dorvaux, B Gall, ..., **D Ackermann**, ...
arXiv preprint arXiv:2104.12526

Fusion of neutron-rich nuclei around the N=20 and N=28 shell closure.

S Hudan, J Johnstone, V Singh, R Giri, R deSouza, **D Ackermann**, ...
Bulletin of the American Physical Society

Probing nuclear forces beyond the nuclear drip line: the cases of ^{16}F and ^{15}F

V Girard-Alcindor, I Stefan, F de Oliveira Santos, O Sorlin, **D Ackermann**, ...
The European Physical Journal A 57 (3), 1-7

Search for elements 119 and 120

J Khuyagbaatar, A Yakushev, CE Düllmann, **D Ackermann**, LL Andersson, ...
Physical Review C 102 (6), 064602

2020

Alpha decay of ^{243}Fm and ^{245}Fm , and of their daughter nuclei

J Khuyagbaatar, FP Heßberger, S Hofmann, **D Ackermann**, HG Burkhard, ...
Physical Review C 102 (4), 044312

New studies and a short review of heavy neutron-rich transfer products

HM Devaraja, S Heinz, **D Ackermann**, T Göbel, FP Heßberger, S Hofmann, ...
The European Physical Journal A 56 (9), 1-17

K isomerism in and total kinetic energy measurements for spontaneous fission of

P Mosat, FP Heßberger, S Antalic, **D Ackermann**, B Andel, M Block, ...
Physical Review C 101 (3), 034310

Scission configuration of from yields and kinetic information of fission fragments

D Ramos, M Caamaño, A Lemasson, M Rejmund, H Alvarez-Pol, ... , **D Ackermann**, ...
Physical Review C 101 (3), 034609

The identification and confirmation of isomeric states in ^{254}Rf and ^{255}Rf through conversion electron detection

J Khuyagbaatar, AK Mistry, **D Ackermann**, LL Andersson, M Block, ...
Nuclear Physics A 994, 121662

2019

First Direct Measurement of Isotopic Fission-Fragment Yields of ^{239}U
D Ramos, M Caamaño, A Lemasson, M Rejmund, L Audouin, ..., **D Ackermann**, ...
Physical review letters 123 (9), 092503

The $^{48}\text{Ca} + ^{181}\text{Ta}$ reaction: Cross section studies and investigation of neutron-deficient $86 \leq Z \leq 93$ isotopes
AK Mistry, J Khuyagbaatar, FP Heßberger, **D Ackermann**, B Andel, ...
Nuclear Physics A 987, 337-349

Measurement of proton-evaporation rates in fusion reactions leading to transfermium nuclei
A Lopez-Martens, AV Yeremin, MS Tezekbayeva, Z Asfari, P Brionnet, ..., **D Ackermann**, ...
Physics Letters B

Fusion reaction $^{48}\text{Ca} + ^{248}\text{Bk}$ leading to formation of the element Ts ($Z=117$)
J Khuyagbaatar, A Yakushev, CE Düllmann, **D Ackermann**, LL Andersson, ...
Physical Review C 99 (5), 054306

Population of nuclides with $Z \geq 98$ in multi-nucleon transfer reactions of $^{48}\text{Ca} + ^{248}\text{Cm}$
HM Devaraja, S Heinz, O Beliuskina, S Hofmann, C Hornung, ... , **D Ackermann**, ...
The European Physical Journal A 55 (2), 25

Alpha-gamma decay studies of ^{258}Db and its (grand)daughter nuclei ^{254}Lr and ^{250}Md
M Vostinar, FP Heßberger, **D Ackermann**, B Andel, S Antalic, M Block, ...
The European Physical Journal A 55 (2), 17

2018

COMPASS - A COMPACT decay Spectroscopy Set-up
D Ackermann, AK Mistry, FP Heßberger, B Andel, S Antalic, M Block, ...
Nucl. Instrum. Methods Phys. Res. A 907, (81-89)

Study of non-fusion products in the $\text{Ti50} + \text{Cf249}$ reaction
A Di Nitto, J Khuyagbaatar, **D Ackermann**, LL Andersson, E Badura, ...
Physics Letters B 784, 199-205

Low-lying states in and: Sampling microsecond -decaying nuclei
A Sâmark-Roth, LG Sarmiento, D Rudolph, J Ljungberg, BG Carlsson, ..., **D Ackermann**, ...
Physical Review C 98 (4), 044307

Precision Measurement of the First Ionization Potential of Nobelium
P Chhetri, **D Ackermann**, H Backe, M Block, B Cheal, C Droese, ...
Physical review letters 120 (26), 263003

Probing Sizes and Shapes of Nobelium Isotopes by Laser Spectroscopy
S Raeder, **D Ackermann**, H Backe, R Beerwerth, JC Berengut, M Block, ...
Physical Review Letters 120 (23), 232503

Mass correlation between light and heavy reaction products in multinucleon transfer collisions
F Galtarossa, L Corradi, S Szilner, E Fioretto, G Pollarolo, T Mijatović, ..., **D Ackermann**, ...
Physical Review C 97 (5), 054606

Neutron-rich nuclei produced at zero degrees in damped collisions induced by a beam of ^{18}O on a ^{238}U target
I Stefan, B Fornal, S Leoni, F Azaiez, C Portail, JC Thomas, AV Karpov, ..., **D Ackermann**, ...
Physics Letters B 779, 456-459

Probing the fusion of neutron-rich nuclei with re-accelerated radioactive beams
J Vadas, V Singh, BB Wiggins, J Huston, S Hudan, Z Lin, CJ Horowitz, ... , **D Ackermann**, ...
Physical Review C 97 (3), 031601

Use of the facility EXOTIC for fusion–evaporation studies

E Strano, G Montagnoli, AM Stefanini, M Mazzocco, GL Zhang, I Zanon, ..., **D Ackermann**,...
Nucl. Instrum. Methods Phys. Res. A 877, (293-299)

2017

The darmstadtium cornerstone

D Ackermann

Nature chemistry 9 (10), 1034

Quantum-state-selective decay spectroscopy of ^{213}Ra

C Lorenz, LG Sarmiento, D Rudolph, DE Ward, M Block, FP Heßberger, ..., **D Ackermann**,...
Physical Review C 96 (3), 034315

Nuclear structure features of very heavy and superheavy nuclei
– tracing quantum mechanics towards the ‘island of stability’

D Ackermann, C Theisen

Physica Scripta 92 (8), 083002

À la recherche de l’ultime atome-La dernière ligne du tableau de Mendeleïev est complétée.

La physique des éléments superlourds aborde de nouveaux défis

C Stodel, D Boilley, J Piot, **D Ackermann**

Reflète de la physique, 14-19

Impact of buffer gas quenching on the $1S_0 \rightarrow 1P_1$ ground-state atomic transition in nobelium

P Chhetri, **D Ackermann**, H Backe, M Block, B Cheal, CE Düllmann, ...

The European Physical Journal D 71 (7), 195

Some critical remarks on a sequence of events interpreted to possibly originate from a decay chain of an element 120 isotop
FP Heßberger, **D Ackermann**

The European Physical Journal A 53 (6), 123

2016

Investigation of electron capture decay of ^{258}Db and α decay of ^{258}Rf

FP Heßberger, S Antalic, **D Ackermann**, B Andel, M Block, Z Kalaninova, ...

The European Physical Journal A 52 (11), 328

Atom-at-a-time laser resonance ionization spectroscopy of nobelium

M Laatiaoui, W Lauth, H Backe, M Block, **D Ackermann**, B Cheal, ...

Nature 538 (7626), 495

Recoil- α -fission and recoil- α - α -fission events observed in the reaction $^{48}\text{Ca} + ^{243}\text{Am}$

U Forsberg, D Rudolph, LL Andersson, A Di Nitto, CE Düllmann, ... , **D Ackermann**,...

Nuclear physics a 953, 117-138

Synthesis of new transuranium isotopes in multinucleon transfer reactions using a velocity filter

S Heinz, HM Devaraja, O Beliuskina, V Comas, S Hofmann, C Hornung, ... , **D Ackermann**,...

The European Physical Journal A 52 (9), 278

Alpha-and EC-decay measurements of ^{257}Rf

FP Heßberger, S Antalic, AK Mistry, **D Ackermann**, B Andel, M Block, ...

The European Physical Journal A 52 (7), 192

Short-lived isomers in ^{192}Po and ^{194}Po

B Andel, AN Andreyev, S Antalic, FP Heßberger, **D Ackermann**, ...

Physical Review C 93 (6), 064316

The Super Separator Spectrometer S3 and the associated detection systems: SIRIUS & LEB-REGLIS3

F Déchery, H Savajols, M Authier, A Drouart, J Nolen, **D Ackermann**, ...

Nuclear Instruments and Methods in Physics Research Section B: Beam ...

Caen, France, 10/28/2021