

Curriculum Vitae

(As of June 9th, 2017)

Thomas Rauscher

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1 Career and Experience

1.1 Academic Education

- Study of Physics at the Technische Universität Wien (University of Technology Vienna), Austria, and Astronomy at the University of Vienna, Austria.
- Diplom-Ingenieur (Dipl.Ing.), December 1989 (Master in Physics),
Technische Universität Wien
Diploma Thesis: “One-Nucleon Transfer below the Coulomb Barrier”,
Institut für Kernphysik (Dept. of Nuclear Physics)
- Dr. techn., December 1991 (PhD)
Technische Universität Wien
PhD thesis: “Reaction Rates for Primordial Nucleosynthesis”,
Institut für Kernphysik (Dept. of Nuclear Physics)
- Privat-Dozent, Habilitation (venia docendi) in “Theoretical Physics”, June 1998
University of Basel, Switzerland
- Assistenzprofessor (assistant professor), 1999
University of Basel, Switzerland
- Reader (associate professor), 2013
University of Hertfordshire, UK

1.2 Fellowships and Awards

- Erwin Schrödinger fellowship, Austrian National Science Foundation (1991)
- Alexander von Humboldt fellowship, Alexander von Humboldt Foundation, Germany (1993)
- APART fellowship (Austrian Program for Advanced Research and Technology), Austrian Academy of Sciences (1995)
- PROFIL professorship (PROFIL Förderungsprofessur), Swiss National Science Foundation (1999)
- Ludwig Boltzmann Prize for Theoretical Physics, Austrian Physical Society (1999)
- “Golden Chalk” award for best physics teaching, Univ. of Basel, Switzerland (2011)
- Distinguished Guest Professor Fellowship, Hungarian Academy of Sciences (2012)
- Fellow of the Institute of Physics (IOP), UK (2013)
- Outstand Reviewer Award, Institute of Physics (IOP), UK (2016)
- Outstanding Referee Award, American Physical Society (2017)

1.3 Professional Memberships

- Institute of Physics (IOP), UK (fellow)
- Fellow of the Royal Astronomical Society
- American Physical Society, member
- American Society for the Advancement of Science
- International Astronomical Union (IAU)
- Österreichische Physikalische Gesellschaft (Austrian Physical Society)

1.4 General Research Interests

- Nucleosynthesis; Nuclear Astrophysics; Astroparticle Physics; Cosmology;
- Stellar, Explosive and Big Bang Nucleosynthesis; Stellar Structure and Evolution, core-collapse Supernovae, X-Ray Bursts, Jets, γ -Ray Bursts;
- Hydrodynamical simulations, Computational Physics, Statistical Data Analysis.
- Nuclear reactions of astrophysical relevance: transfer and fusion reactions, radiative capture, fission;
- Nuclear structure of astrophysical relevance.

1.5 International (Large Scale) Collaborations

- Member of the UK Network for Bridging Disciplines of Galactic Chemical Evolution (BRIDGCE), United Kingdom, <http://www.astro.keele.ac.uk/bridgce>
- Named participant in the Advanced Grant GA 321263-FISH of the European Research Council: *Faint Supernovae and Hypernovae: Mechanism and Nucleosynthesis (FISH)* (2013-2016)
- Named participant in the Starting Grant 306901 of the European Research Council: *Stellar Hydrodynamics, Nucleosynthesis and Evolution (SHYNE)* (2012-2017)
- Member of the Basel University research focus on “Astroparticle Physics”
- Member of the THEXO (theory of exotic nuclei) group of the ENSAR (European Nuclear Science and Applications Research) project (within the 7th European Research Framework Program), since 2011
- Member of the EUROCORE program *EuroGENESIS*: Coordinated Research Project *MASCHE* (Massive Stars as Agents of Chemical Evolution), Coordinated Research Project *CoDustMas* (Cosmic Dust Grains as a Diagnostic for Massive Stars), 2010-2013

- Member of the *nTOF* (CERN PS 213), *EXL* (GSI FAIR), *ELISe* (GSI FAIR) collaborations, since 1999
- Convener of the astrophysics working group of the CERN-PS Neutron TOF Facility collaboration (1999/2000) and nTOF astrophysics advisor (since 1999)
- Associate to *JINA* (Joint Institute of Nuclear Astrophysics, between Univ. of Chicago, Michigan State Univ., and Univ. of Notre Dame), 2001-2010
- Participant in the USA DOE SciDAC (Scientific Discovery through Advanced Computing) program, Supernova Science Center, 2000-2010
- Associate Member of the *International Graduate School Basel–Tübingen–Graz* (Europäisches Graduiertenkolleg Basel–Tübingen–Graz), 2001-2010 (funded through the National Science Foundations of Germany, Austria, and Switzerland)
- Network partner of the *CARINA* network, 2005-2008 (funded through 6th European Research Framework Program)

1.6 Professional Experience

- 1983 to 1989
part-time job as application programmer and commercial software developer at Philips Data Systems, Vienna, Austria
- June 1990 to February 1991
Research Assistant
Institut für Kernphysik, TU Wien (Dept. of Nuclear Physics, Univ. Techn. Vienna)
- March 1991 to March 1992
Research Fellow
Institut für Kernphysik, TU Wien (Dept. of Nuclear Physics, Univ. Techn. Vienna)
- April 1992 to September 1993
Research Associate
Harvard-Smithsonian Center for Astrophysics
- October 1993 to July 1995
Alexander von Humboldt fellowship
Institute for Nuclear Chemistry
University of Mainz, Mainz, Germany
- August 1995 to July 1998
APART (Austrian Program for Advanced Research and Technology)
fellowship from the Austrian Academy of Sciences,
Department of Physics and Astronomy,
University of Basel, Basel, Switzerland
- August 1998 to July 1999
Lecturer (Privat-Dozent)
Department of Physics and Astronomy,
University of Basel, Basel, Switzerland
- since August 1999
Assistant Professor
PROFIL professorship of the Swiss National Science Foundation
(PROFIL Förderungsprofessur)
Department of Physics and Astronomy, University of Basel, Switzerland
- October 1999 to September 2000
Visiting Researcher
Department of Astronomy and Astrophysics,
University of California at Santa Cruz, CA, USA
- October 2000 to August 2012
resumed position of a PROFIL Assistant Professor
Department of Physics and Astronomy,
University of Basel, Basel, Switzerland

- September 2012 to February 2013
Sabbatical position as Distinguished Guest Professor
(funded by the Hungarian Academy of Sciences)
Institute of Nuclear Research (ATOMKI), Debrecen, Hungary
- January 2013 to September 2015
Adjunct Professor
Department of Physics,
University of Basel, Basel, Switzerland
- January 2013 to September 2015
Reader (Associate Professor)
Centre for Astrophysical Research
School of Physics, Astronomy and Mathematics,
University of Hertfordshire, Hatfield, UK
- October 2015 to December 2016
Assistant Professor (ERC)
Department of Physics,
University of Basel, Basel, Switzerland
- since January 2017
Adjunct Lecturer (Privat-Dozent)
Department of Physics,
University of Basel, Basel, Switzerland
- since October 2015
Patent expert
Swiss Federal Institute for Intellectual Property,
Berne, Switzerland
- since October 2015
Visiting Research Fellow
Centre for Astrophysical Research
School of Physics, Astronomy and Mathematics,
University of Hertfordshire, Hatfield, UK

1.7 Additional Professional Experience

- *Member* of the PAC (Program Advisory Committee) for Nuclear Physics Experiments at the RIKEN RI Beam Factory, Japan (since 2015).
- *Module coordinator* for the teaching modules “Solar and Planetary Physics” and “Physics of Stars” in the School of Physics, Astronomy and Mathematics of the University of Hertfordshire, UK (since September 2013)
- *Referee for* The Astrophysical Journal, Astrophysical Journals Letters, Astronomy and Astrophysics, Nuclear Physics A, Physical Review Letters, Physical Review C/D, Journal of Physics G, Physics Letters B, Canadian Journal of Physics,

- Progress in Particle and Nuclear Physics, Nuclear Instruments and Methods A/B, Europhysics Letters, European Physical Journal A, Physica Scripta, New Journal of Physics, NASA Planetary Science and Cosmochemistry Program, PRACE (Partnership for Advanced Computing in Europe)
- *Member* of the NuPECC (Nuclear Physics European Collaboration Committee) working group on Nuclear Astrophysics for the 2010 Long Range Plan
 - *Member* of the International Advisory Committee of the JINA Reaction Rate Database for Astrophysics
 - *Member* of these International/Scientific Advisory Committees: Russbach Workshop on Nuclear Astrophysics (annually), CGS14 conference (2011), Workshop on "Open problems and future directions in heavy element nucleosynthesis" (ATOMKI Debrecen, 2013), CGS15 conference (2014), Workshop on "Production of p-nuclei" (June 2015)
 - *Editorial Board Member* of The Open Astronomy Journal, The Open Nuclear and Particle Physics Journal
 - Active participation in experiments at CERN (ISOLDE, nTOF), Switzerland, GANIL, France, NSCL of Michigan State University, USA, Darmstadt and Stuttgart, Germany.
 - *Supervisor* (external moderator) for university qualifying exit examinations in physics and mathematics at the high school of Liestal, Switzerland (Externer Experte für die mündliche und schriftliche Physik- und Mathematik-Matur am Gymnasium Liestal)
 - Organisational Support for 1st Intl. Conference on Nuclear Astrophysics, "Nuclei in the Cosmos", Baden/Vienna 1990
 - Programming Languages and Tools: C, FORTRAN 90/95, JAVA, C++, PYTHON, MODULA-2, PASCAL, BASIC, VBA, R, MAPLE, MATLAB, TCL/TK, PHP, shell scripts
 - System Administration: Unix (Digital Unix), Linux, WWW administration, Beowulf cluster of the Basel Physics Department

1.8 Public Outreach Activities

- *Popular Science talks and presentations*: several public talks on stars and their nucleosynthesis (Switzerland, Austria, Germany); annual overview of the working group activities at the information day for high school students (University of Basel, Switzerland, since 1998); presentations and talks at the annual "open doors" event at the Univ. Basel (since 2005); information booth on astrophysical research at the Saturday Morning Physics event (U. Basel, 2007, 2009).
- *Popular Science publications*: articles and short contributions in german and austrian popular science magazines.

- *Interaction with schools*
 - *Teaching*: elective courses in Astronomy and Astrophysics at the NOVARTIS technical high school, Basel, Switzerland (1997-1999); TecDay workshop for high school students (Liestal, Switzerland, 2009).
 - *Others*: supervisor for university qualifying exit examinations (written and oral) in physics and mathematics at the high school of Liestal, Switzerland (since 2000).
- *Wikipedia*: frequent creation and correction of english and german articles concerning topics in physics, astrophysics, and astronomy.
- *Social Media*: dedicated *Nuclear Astrophysics* page on GOOGLE+, infrequent general science postings on personal GOOGLE+ page.

1.9 Additional Training (“Fortbildung”)

- Rhetorics, 1997
- Didactics and methods of presentation and teaching, 1997
- Conception and planning of media/internet-based teaching, 2001
- Examination techniques (oral vs. written), 2001
- Project Management, 2003
- Media and Science — Science and Media (science journalism), 2003
- Company Start-Up Seminar, 2003
- Practical Leadership (“Führungspraxis”), 2004
- Internship at a Patent Lawyer’s Office, 2006

1.10 Language Skills

- German: mother tongue
- English: fluent (spoken and written)
- French: advanced (niveau DELF 2)
- Italian: basic knowledge

1.11 Teaching Experience

- March 1989 to March 1992
Teaching Assistant for undergraduates and graduate students at the Dept. of Nuclear Physics, Univ. of Technology, Vienna, Austria
- October 1993 to June 1995
Lecture series on “Nuclear Astrophysics” and “The Early Universe” (Big Bang Nucleosynthesis), with Prof. Dr. K.-L. Kratz, Institute for Nuclear Chemistry, University of Mainz, Mainz, Germany
- December 1996
Quantum Mechanics, core course
(temporary replacement for Prof. Dr. F.-K. Thielemann)
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- June 1997
Electrodynamics, core course
(temporary replacement for Prof. Dr. F.-K. Thielemann)
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Winter term 97/98 (October 1997 to March 1998)
Quantum Mechanics, exercise course,
Department of Physics and Astronomy
University of Basel, Basel, Switzerland
- Winter term 97/98 (October 1997 to March 1998)
Astronomy & Astrophysics for Technical College Students,
Berufsschule NOVARTIS, Basel, Switzerland
- Winter term 98/99 (October 1998 to March 1999)
Astronomy & Astrophysics for Technical College Students,
Berufsschule NOVARTIS, Basel, Switzerland
- January 1999
Classical Mechanics, core course,
(temporary replacement for Prof. Dr. F.-K. Thielemann)
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Summer term 99 (March 1999 to June 1999)
Introductory Nuclear Physics, exercise course,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- June 1999
Electrodynamics, core course,
(temporary replacement for Prof. Dr. F.-K. Thielemann)
Department of Physics and Astronomy, University of Basel, Basel Switzerland
- Winter term 99/00 (October 1999 to March 2000)
Computational Physics,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland

- Winter term 00/01 (October 2000 to March 2001)
Nuclear Astrophysics,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Summer term 01 (March 2001 to July 2001)
Nuclear Astrophysics II,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- October 2001
Introduction to Nuclear Astrophysics,
(single-week condensed guest-lecture series)
Department of Physics, University of Tübingen, Tübingen, Germany
- Summer term 05 (April 2005 to July 2005)
The Standard Model in Particle Physics,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Winter terms 01/02, 02/03, 03/04, 04/05, 05/06, 06/07 (October to March)
Nuclear Astrophysics I,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Summer terms 02, 03, 04, 05, 06, 07 (April to July)
Nuclear Astrophysics II,
Department of Physics and Astronomy, University of Basel, Basel, Switzerland
- Fall terms 2007, 2008, 2009, 2010, 2011
Primordial Nucleosynthesis and Hydrostatic Burning Phases,
Department of Physics, University of Basel, Basel, Switzerland
- Spring terms 2008, 2009, 2010, 2011, 2012
Stellar Models, Supernovae, Explosive Nucleosynthesis,
Department of Physics, University of Basel, Basel, Switzerland
- Fall term 2012
Introduction to Stellar and Explosive Nucleosynthesis and Nuclear Astrophysics,
condensed lecture weeks at ATOMKI Debrecen + University of Debrecen + Eötvös
Loránd University Budapest, Hungary
- Spring term 2013
School of Physics, Astronomy and Mathematics, University of Hertfordshire, UK
 - The Sun (full class as part of the second year module Solar System Physics)
 - Contemporary Physics Lab Course
- Academic Year 2013/14
School of Physics, Astronomy and Mathematics, University of Hertfordshire, UK
 - Physics of Stars (2 semester course + module coordination)
 - Thermal Physics (2 semester course)

- Small Group Tutorials (2 semester course)
- The Sun (+ module coordination of Solar and Planetary Physics)
- Contemporary Physics Lab Course
- Investigations in Physics (undergraduate project), supervision of 2 students
- Academic Year 2014/15
School of Physics, Astronomy and Mathematics, University of Hertfordshire, UK
 - Physics of Stars (2 semester course + module coordination)
 - Small Group Tutorials (2 semester course)
 - Thermal Physics (Statistical Mechanics)
 - Quantum Physics (Nuclear Physics)
 - The Sun (+ module coordination of Solar and Planetary Physics)
 - Contemporary Physics Lab Course
 - Investigations in Physics (undergraduate project), supervision of 3 students
 - Project in Physics (undergraduate 2-semester project), supervision of 1 student
- Fall term 2016
Stellar Models, Supernovae, Explosive Nucleosynthesis,
Department of Physics, University of Basel, Basel, Switzerland
- Fall term 2017
Primordial Nucleosynthesis and Hydrostatic Burning Phases,
Department of Physics, University of Basel, Basel, Switzerland
- Spring term 2018
Stellar Models, Supernovae, Explosive Nucleosynthesis,
Department of Physics, University of Basel, Basel, Switzerland

1.12 Supervised Research Work

- University of Technology, Vienna, Austria
Co-supervision of 3 diploma theses, 1989–1992
Co-supervision of 2 PhD students, 1991–1994
- University of Mainz, Germany
Co-supervision of 1 PhD student, 1993–1995
- University of Basel, Switzerland
Co-supervision of 3 diploma theses, 1997–1999, 2012/13
Co-supervision of 3 PhD students, 1997–1999, 2012–2016 (2)
Supervision of 6 diploma theses, 2000–'01, 2001–'02, 2004–'05, 2006, 2007/8, 2011/12
Supervision of 5 PhD students, 2001–2005, 2002–2006, 2007–2011 (2)

- École Nationale Supérieure de Géologie
et Institut Nationale Polytechnique de Lorraine, Nancy, France
Examineur (thesis jury member) (candidate: Nicolas Dauphas), 2002
- Groupe de Recherche en Astronomie et Astrophysique (GRAAL),
Univ. de Montpellier 2, Montpellier, France
Examineur (thesis jury member) (candidate: Patrick Vonlanthen), 2009

1.13 Received Funding

- Austrian National Science Foundation: 1992, Erwin Schrödinger fellowship, US\$ 25'000.00/yr
- Alexander von Humboldt Foundation, Germany: 1993, Alexander von Humboldt fellowship, research area *Astrophysics*, DM 70'400.00 (22 months) + travel expenses
- Austrian Academy of Sciences: 1995, APART fellowship, ATS 620'000.00/yr (3 yrs) + travel expenses
- Swiss National Science Foundation: 1999, PROFIL professorship (PROFIL Förderungsprofessur), “*Nuclear aspects of stellar and explosive nucleosynthesis*”, project number 2124-055832.98: CHF 384'000.00 (3 yrs., renewable)
- Swiss National Science Foundation: 2000, research grant, project number 2000-061822.00: CHF 544'000.00 (2 yrs.)
- Swiss National Science Foundation: 2002, research grant “*Theoretical Astrophysics and Supporting Topics in Nuclear Physics*” (joint PI with F.-K. Thielemann), project number 2000-061031.02: CHF 540'000.00 (2 yrs., renewable)
- Swiss National Science Foundation: 2002, extension of PROFIL professorship (PROFIL Förderungsprofessur), project number 2024-067428: CHF 270'000.00 (2 yrs.)
- Swiss National Science Foundation: 2004, research grant (joint PI with F.-K. Thielemann), project number 2000-105328: CHF 550'000.00 (2 yrs., renewable)
- Swiss National Science Foundation: 2006, research grant “*Astrophysical processes, their simulation and related nuclear physics issues*” (joint PI with F.-K. Thielemann, M. Liebendörfer), project number 200020-113984: CHF 544'000.00 (2 yrs., renewable)
- Swiss National Science Foundation: 2008, research grant (joint PI with F.-K. Thielemann, M. Liebendörfer), project number 200020-122287: CHF 682'000.00 (2 yrs., renewable)
- Royal Society: 2009, International Joint Project, with Keele Univ., UK (R. Hirschi): GBP 10'530 (2 yrs.)
- Swiss National Science Foundation: 2010, research grant (joint PI with F.-K. Thielemann, M. Liebendörfer, M. Pignatari), project number 200020-132816: CHF 708'172.00 (2 yrs., renewable)

- Hungarian Academy of Sciences: 2012, Distinguished Researcher Fellowship, HUF 2'500'000 per month (6 months)
- Science & Technology Facilities Council, UK (astronomy panel): 2014, PI of STFC grant "*BRIDGCE: The Rise of the Chemical Elements*", GBP 303'902 (3 yrs.)

2 References

- Prof. Dr. Friedrich-Karl Thielemann
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Astronomisches Recheninstitut
Universität Heidelberg
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grebel@ari.uni-heidelberg.de

3 Publications

Total number of publications listed here: 578, citations: over 8800.

(According to ISI Web of Science; it should be noted that the NASA ADS citations do not include all of the relevant journals!)

For a more update on-line list of publications with electronic links to preprints see <http://thomasrauscher.ch/pubs.html>.

3.1 Citation Analyses

3.1.1 h-Index

Currently $h=44$, $m=1.73$ for *refereed citations* according to ISI Web of Science. ¹

Values from other sources:

- NASA ADS: more than 8200 citations, h-index 42;
- Google Scholar: more than 11400 citations, h-index 51, i10-index 170.

3.1.2 Appearance in Essential Science Indicators

Papers quoted in the ISI Essential Science Indicators (based on the ISI Science Citation Index) are among the most cited papers in the field (top 1%).

- **Highly cited papers (last 10 years)** (Top 1% in their fields according to ESI!)
 - **Astrophysical Reaction Rates From Statistical Model Calculations**, T. Rauscher, F.-K. Thielemann; *At. Data Nucl. Data Tables* **75** (2000) 1.
 - **Nucleosynthesis in Massive Stars With Improved Nuclear and Stellar Physics**, T. Rauscher, A. Heger, R. D. Hoffman, S. E. Woosley; *Astrophys. J.* **576** (2002) 323.
 - **Neutron Cross Sections for Nucleosynthesis Studies**, Z. Y. Bao, H. Beer, F. Käppeler, F. Voss, K. Wisshak, T. Rauscher; *At. Data Nucl. Data Tables* **76** (2000) 70.
 - **Endpoint of the rp-Process on Accreting Neutron Stars**, H. Schatz, A. Aprahamian, V. Barnard, L. Bildsten, A. Cummings, M. Ouellette, T. Rauscher, F.-K. Thielemann, M. Wiescher; *Phys. Rev. Lett.* **86** (2001) 3471.
 - Strangely, my currently sixth most cited paper (no. 20 in the list below) is not here. This may be due to the statistical weighting used in the ESI which emphasize the early citations a paper receives and the (somewhat arbitrary)

¹The h-index is defined and discussed in “An index to quantify an individual’s scientific research output” by J. E. Hirsch, *Proc. Nat. Acad. Sci.* **46** (2005) 16569 (arXiv:physics/0508025).

division into different fields which penalizes scientists in interdisciplinary research. *Incidentally, it is the 4th most cited paper of all papers published in Physical Review C in 1997!*

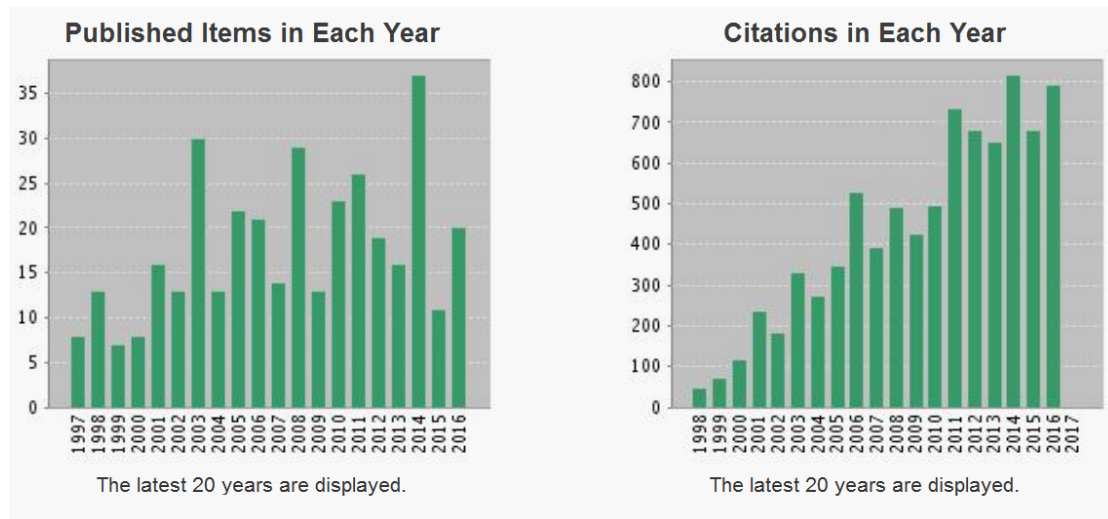
3.1.3 Web of Science Citation Analyses

ISI WEB OF KNOWLEDGESM data retrieved January 4, 2017; my publication list below is more recent and more complete and therefore shows more publications.

Publications	381
Total Citations	8400
Average Citation per Item	22.01
h-Index	43

See also my ResearcherID page at <http://www.researcherid.com/rid/D-2086-2009> for updated statistics!

3.1.3.1 Analysis by Year



(continued on next page)

3.1.3.2 Top 10 Publications by Citation

	2013	2014	2015	2016	2017	Total	Average Citations per Year
	651	815	679	794	0	8360	334.40
1. Nucleosynthesis in massive stars with improved nuclear and stellar physics By: Rauscher, T, Heger, A, Hoffman, RD; et al. ASTROPHYSICAL JOURNAL Volume: 576 Issue: 1 Pages: 323-348 Part: 1 Published: SEP 1 2002	37	40	41	49	0	558	34.88
2. Astrophysical reaction rates from statistical model calculations By: Rauscher, T, Thielemann, FK ATOMIC DATA AND NUCLEAR DATA TABLES Volume: 75 Issue: 1-2 Pages: 1-351 Published: MAY-JUL 2000	27	39	33	29	0	524	29.11
3. rp-process nucleosynthesis at extreme temperature and density conditions By: Schatz, H, Aprahamian, A, Gorres, J, et al. PHYSICS REPORTS-REVIEW SECTION OF PHYSICS LETTERS Volume: 294 Issue: 4 Pages: 167-263 Published: FEB 1998	25	28	17	28	0	489	24.45
4. End point of the rp process on accreting neutron stars By: Schatz, H, Aprahamian, A, Barnard, V, et al. PHYSICAL REVIEW LETTERS Volume: 86 Issue: 16 Pages: 3471-3474 Published: APR 16 2001	21	18	15	19	0	342	20.12
5. Neutron cross sections for nucleosynthesis studies By: Bao, ZY, Beer, H, Kappeler, F, et al. ATOMIC DATA AND NUCLEAR DATA TABLES Volume: 76 Issue: 1 Pages: 70-154 Published: SEP 2000	21	18	16	19	0	341	18.94
6. Nuclear level density and the determination of thermonuclear rates for astrophysics By: Rauscher, T, Thielemann, FK, Kratz, KL PHYSICAL REVIEW C Volume: 56 Issue: 3 Pages: 1613-1625 Published: SEP 1997	13	14	13	7	0	252	12.00
7. Tables of nuclear cross sections and reaction rates: An addendum to the paper "Astrophysical reaction rates from statistical model calculations" By: Rauscher, T, Thielemann, FK ATOMIC DATA AND NUCLEAR DATA TABLES Volume: 79 Issue: 1 Pages: 47-64 Published: SEP 2001	10	9	15	10	0	205	12.06
8. THE JINA REACLIB DATABASE: ITS RECENT UPDATES AND IMPACT ON TYPE-I X-RAY BURSTS By: Cyburt, Richard H.; Amthor, A. Matthew; Ferguson, Ryan; et al. ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES Volume: 189 Issue: 1 Pages: 240-252 Published: JUL 2010	31	34	34	42	0	194	24.25
9. Models for Type I X-ray bursts with improved nuclear physics By: Woosley, SE, Heger, A, Cumming, A, et al. ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES Volume: 151 Issue: 1 Pages: 75-102 Published: MAR 2004	9	14	11	12	0	193	13.79
10. The astrophysical r-process: A comparison of calculations following adiabatic expansion with classical calculations based on neutron densities and temperatures By: Freiburghaus, C, Rembges, JF, Rauscher, T, et al. ASTROPHYSICAL JOURNAL Volume: 516 Issue: 1 Pages: 381-398 Part: 1 Published: MAY 1 1999	4	6	8	3	0	183	9.63

3.2 Full Publication Lists

3.2.1 Publications in Journals

1. **Cross Sections for the d+d Fusion Reactions**, K. Grün, H. Krauss, T. Rauscher, H. Oberhummer, G. Raimann, K. Langanke, T. Warmann; *Muon Catalysed Fusion* **5/6** (1991) 505.
2. **Direct Nuclear Reactions in Cosmic Nucleosynthesis**, G. Raimann, H. Abele, G. Staudt, B. Bach, K. Grün, H. Herndl, H. Krauss, H. Oberhummer, T. Rauscher; *Annales Geophysicae* **9** (1991) C369.
3. **Analyses of $^8\text{Li}(\alpha, n)^{11}\text{B}$ below the Coulomb Barrier in the Potential Model**, T. Rauscher, K. Grün, H. Krauss, H. Oberhummer, E. Kwaśniewicz; *Phys. Rev. C* **45** (1992) 1996.
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(Review articles in journals are included above in the journal publications.)

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 56. **Electron Scattering Off Rare Isotopes – The ELISE Experiment at FAIR**, H. Simon for the ELISE-Collaboration; *Verhandl. DPG(VI) 43* (2008) 4/HK 34.104.
 57. **Constraining Nucleosynthesis in Type I X-Ray Bursts through Mass Measurements**, A. Parikh, J. José, C. Iliadis, F. Moreno, T. Rauscher; *Verhandl. DPG(VI) 44* (2009) 4/HK 38.3.
 58. **Neutron-capture cross sections of Fe-peak seed nuclei**, I. Dillmann, et al. (The n_TOF Collaboration); *Verhandl. DPG(VI) 44* (2009) 4/HK 60.2.
 59. **R-process nucleosynthesis calculations with complete nuclear physics input**, I. Petermann, A. Arcones, A. Kelić, K. Langanke, G. Martínez-Pinedo, I. Panov, T. Rauscher, K.-H. Schmidt, F.-K. Thielemann, N. Zinner; *Verhandl. DPG(VI) 44* (2009) 4/HK 60.3.

60. **Measurement of neutron-induced fission cross sections of Pb-nat and Bi-209 up to 1 GeV**, D. Tarrío, et al. (The n_TOF Collaboration); *Verhandl. DPG(VI) 44* (2009) 4/HK 77.5.
61. **Low-lying dipole response in the Relativistic Quasiparticle Time Blocking Approximation and its influence on neutron capture cross sections**, E. Litvinova, H. P. Loens, K. Langanke, G. Martínez-Pinedo, T. Rauscher, P. Ring, F.-K. Thielemann, V. Tselyaev; *GSI Annual Report 2008*, (GSI Report 2009-1), p. 174.
62. **Experimental constraints on the stellar $^{63}\text{Ni}(n,\gamma)^{64}\text{Ni}$ cross section**, I. Dillmann, et al. (The FZK-FZD-TUM Collaboration); *Verhandl. DPG(VI) 45* (2010) 4/HK 55.1.
63. **Changes of the ashes of an X-ray burst due to better known nuclear masses**, E. Haettner, et al.; *GSI Scientific Report 2010*, (GSI Darmstadt, 2011), p. 156.
64. **Neutron-Induced Astrophysical Reaction Rates for Translead Nuclei**, I. V. Panov, I. Yu. Korneev, T. Rauscher, G. Martínez-Pinedo, A. Kelić-Heil, N. T. Zinner, F.-K. Thielemann; *GSI Scientific Report 2010*, (GSI Darmstadt, 2011), p. 173.

3.3 Electronic Material (WWW) and Computer Codes

- Scientific Home Page:<http://nucastro.org/>
- Personal Home Page (including CV and publication list):<http://thomasrauscher.ch>
- Web interface to nuclear reaction cross sections and astrophysical reaction rates calculated in the framework of a statistical model (Hauser-Feshbach theory) in JAVA and as HTML form:
<http://nucastro.org/reaclib.html>
- Online Hauser-Feshbach reaction cross section code NON-SMOKER^{WEB}:
<http://nucastro.org/nonsmoker.html>
- Online multi-reaction mechanism code for astrophysical reaction rates SMARAGD (under development, not yet publicly available).
- Monte Carlo tools for reaction network studies including the driver PIZBUIN and the reaction network code MCWINNET.
- List of codes developed or modified by T. Rauscher (incomplete, hydro and Monte Carlo codes not (yet) publicly accessible):
<http://nucastro.org/codes.html>

4 Invited Talks

(Here only invited talks are given, my numerous contributed talks and posters at conferences are not listed.)

- **Nukleosynthese mit radioaktiven Kernen: Reaktionsmechanismen und Modelle** (Nucleosynthesis With Radioactive Nuclei: Reaction Mechanisms And Models); Annual Meeting of the German Physical Society, Section Hadrons and Nuclei, Munich, Germany, March 1994.
- **Nuclear Level Density And The Hauser-Feshbach Theory**, University of Basel, Basel, Switzerland, April 1995.
- **Theoretische Methoden zur Vorhersage von astrophysikalischen Reaktionsraten an instabilen Kernen** (Theoretical Methods For The Prediction Of Astrophysical Reaction Rates On Unstable Nuclei); Forschungszentrum Karlsruhe, Karlsruhe, Germany, July 1997.
- **Prediction of Nuclear Reaction Rates For Astrophysics**; Int. Conf. “Nuclei in the Cosmos V”, Volos, Greece, July 1998.
- **Prediction of Nuclear Reaction Rates for Astrophysics – Recent Achievements and Open Problems**; Oak Ridge National Laboratory (ORNL), Oak Ridge, TN, USA, September 1998.
- **Nuclear Astrophysics As A Challenge To Understand Neutron-Rich Heavy Nuclei**; 1st Collaboration Meeting of the CERN-PS Neutron TOF Facility, CERN, Geneva, Switzerland, January 1999.
- **New predictions of astrophysical reaction rates and consequences for nucleosynthesis in type II supernovae**; Workshop on Nuclear Reactions in Stars and in the Laboratory, European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy, February 1999.
- **X-ray bursts and proton captures close to the driplines**; NORDITA, Copenhagen, Sweden, February 1999.
- **Prediction of Nuclear Reactions Far From Stability and Their Impact on r-Process Nucleosynthesis**; Spring meeting of the American Chemical Society, Anaheim, CA, USA, March 1999.
- **Prediction of Nuclear Reaction Rates for Astrophysics and the rp-Process**; Workshop “The Beta Decay, From Weak Interaction To Nuclear Structure”, Strasbourg, France, March 1999.
- **Nuclear Physics and the Formation of the Chemical Elements in the Universe**; MSU (NSCL), East Lansing, MI, USA, March 1999.
- **Nuclear Aspects of Stellar Evolution and Nucleosynthesis**; “The Origin Of Elements In The Solar System”, special symposium at the Annual Meeting of the American Chemical Society, New Orleans, LA, USA, September 1999.

- **Determination of Reaction Rates for Nucleosynthesis – Methods and Problems**; 10th Int. Symp. Capture Gamma Ray Spectroscopy and Related Topics (CGS10), Santa Fe, NM, USA, September 1999.
- **Findet der r-Prozeß in Supernovae statt?** (Does the r-process take place in supernovae?); Ludwig Boltzmann Award talk, Annual meeting of the Austrian Physical Society, Innsbruck, Austria, September 1999.
- **Nukleare Astrophysik als Schlüssel zum Verständnis von Sternen und Sternexplosionen** (Nuclear Astrophysics as the key to understand stars and stellar explosions); physics colloquium, University of Basel, Basel, Switzerland, January 2000.
- **Nuclear physics requirements for astrophysical simulations**; IPN (Institut de Physique Nucléaire) Orsay, Paris, France, January 2000.
- **Nucleosynthesis in massive stars**; Int. Conf. “Structure of the Nucleus at the Dawn of the Century”, Bologna, Italy, May 2000.
- **Nucleosynthesis in Quiescent and Explosive Stellar Burning**; Yale University, New Haven, CT, USA, November 2000.
- **Nukleosynthese in explosivem stellaren Brennen als Herausforderung an die Kernphysik** (Nucleosynthesis in explosive stellar burning as a challenge for Nuclear Physics); Institut für Strahlenphysik, Universität Stuttgart, Germany, December 2000.
- **Nuclear Physics and Nucleosynthesis in Massive Stars**, Annual Meeting of the Swiss Physical Society, Dübendorf, Switzerland, May 2001.
- **Nuclear Aspects of the s- and n-Processes in Massive Stars**, IX International Seminar on Interaction of Neutrons with Nuclei (ISINN-9), Dubna, Russia, May 2001.
- **Nucleosynthesis of Solar Abundances as a Challenge to Modern Nuclear Physics**, Los Alamos National Laboratory, USA, June 2001.
- **Einführung in die Nukleare Astrophysik** (Introduction to Nuclear Astrophysics); invited condensed lecture series, University of Tübingen, Tübingen, Germany, October 2001.
- **Production of Intermediate and Heavy Nuclei in Explosive Events**, Ecole Nationale Supérieure de Géologie and CRPG (CNRS), Nancy, France, January 2002.
- **Properties of Neutron-Rich Nuclei Relevant for Astrophysics**, workshop “Nuclear Collective Dynamics at Extreme Conditions”, ECT*, Trento, Italy, March 2002.
- ***p* Process in Type II Supernovae**, ESF Exploratory Workshop on *p*-Process Nucleosynthesis, Athens, Greece, April 2002.

- **Reaction Rates and Nuclear Properties Relevant for Nucleosynthesis in Massive Stars and Far From Stability**, 11th Int. Symp. on Capture γ -Ray Spectroscopy and Related Topics, Prague, Czech Republic, September 2002.
- **Stellar Evolution and Nucleosynthesis of Massive Stars and Related Nuclear Uncertainties**, 17th Int. Nuclear Physics Divisional Conf. of the EPS “Nuclear Physics in Astrophysics”, Debrecen, Hungary, October 2002.
- **Neue experimentelle und theoretische Herausforderungen in der Nuklearen Astrophysik** (New experimental and theoretical challenges in Nuclear Astrophysics); Atomic Institute of the Austrian Universities, Vienna, Austria, February 2003.
- **Theoretical Nuclear Cross Sections and Reaction Networks**, nTOF winter school, Les Houches, France, February 2003.
- **Kernphysikalische Aspekte der Nukleosynthese in schweren Sternen** (Nuclear physics aspects of nucleosynthesis in massive stars), Department of Physics, University of Rostock, Rostock, Germany, May 2003.
- **Nucleosynthesis in Massive Stars**, Int. Workshop “Astronomy With Radioactivities”, Seon, Germany, May 2003.
- **Exotic Nuclei and Their Properties Relevant for Astrophysical Applications**, Colloque Noyaux Exotique, meeting of the interdisciplinary research collaboration (Groupement de Recherches) “Structure des Noyaux Exotiques”, IPN Orsay, France, September 2003.
- **What Can RIA Contribute to the Improved Determination of Astrophysical Reaction Rates Involving Unstable Nuclei?**, RIA Theory Group meeting, Tucson, AZ, USA, November 2003.
- **RIA and r-process rates**, RIA Astrophysics Group Workshop on r-Process Nucleosynthesis, Seattle, WA, USA, January 2004.
- **Stellar Evolution and Nucleosynthesis: Reaction Rates in Astrophysics**, LLNL Workshop “Nuclear Reactions on Unstable Nuclei and the Surrogate Reaction Technique”, Monterey, CA, USA, January 2004.
- **Kernphysikalische Aspekte der Nukleosynthese in schweren Sternen** (Nuclear physics aspects of nucleosynthesis in massive stars), Kolloquium, TU Darmstadt, Germany, February 2004.
- **Nuclear Reactions in Astrophysics: Rates, Networks, and Equilibria**, VISTARS Workshop on Nuclear Astrophysics, Russbach, Austria, March 2004.
- **Reaction rates in stellar nucleosynthesis**, 2nd n_TOF Winter School, Flachau, Austria, March 2004.
- **Kernphysikalische Aspekte der Nukleosynthese in schweren Sternen** (Nuclear physics aspects of nucleosynthesis in massive stars), FZ Rossendorf, Dresden, Germany, May 2004.

- **The impact of nuclear reactions on stellar evolution and nucleosynthesis**, 2004 Gordon Research Conference on Nuclear Chemistry: “Nuclear Reactions, Flavors Across Energies”, New London, NH, USA, June 2004.
- **Nucleosynthesis Contributions of Massive Stars**, Workshop on Nuclear Astrophysics, FZ Karlsruhe, Germany, September 2004.
- **Key Data for Astrophysical Applications**, VISTARS Workshop on Nuclear Astrophysics, Russbach, Austria, March 2005.
- **Reaction Theory in Astrophysics**, Workshop on Reaction Mechanisms for Rare Isotope Beams, MSU, USA, March 2005.
- **Predicting Low-Energy Cross Sections for Astrophysics**, Int. Symposium on Neutrons in Basic Science and Nuclear Technologies, CERN, Switzerland, March 2005.
- **Nuclear Aspects of Energy Generation and Nucleosynthesis in Massive Stars**, Colloquium of the Int. Graduate School Giessen-Kopenhagen, Giessen, Germany, June 2005.
- **Nuclear properties and reaction rates for hydrostatic and explosive burning**, Workshop on Nuclear Astrophysics with SPIRAL2, Caen, France, October 2005.
- **Das Leben der Sterne und die Entstehung der Elemente** (Life of Stars and Creation of the Elements), public outreach talk, 3. Naturwissenschaftliches Forum, Academia Engiadina, Samedan, Switzerland, November 2005.
- **Reaction rate uncertainties in the p-process**, International Workshop XXXIV on Gross Properties of Nuclei and Nuclear Excitations, Hirschegg, Austria, January 2006.
- **Understanding nucleosynthesis and stellar explosions: A challenge for modern nuclear physics**, IoP Meeting on Nuclear Astrophysics, Edinburgh, UK, May 2006.
- **Predictions of reaction rates: Statistical methods**, NIC IX satellite workshop “Data Needs in Nuclear Astrophysics”, Basel, Switzerland, June 2006.
- **Nuclear Aspects of Nucleosynthesis in Massive Stars**, Kolloquium, Institute for Isotope Research and Nuclear Physics, University of Vienna, Vienna, Austria, July 2006.
- **Uncertainties in (astrophysical reaction rates for) p-process nucleosynthesis**, SFB seminar talk, TU Darmstadt, Germany, November 2006.
- **Nuclear Astrophysics**, main lectures, workshop Schleching, Germany, February 2007.
- **Nucleosynthesis in the deep layers and shells of exploding massive stars**, 3rd Int. Conf. Nuclear Physics in Astrophysics, Dresden, Germany, March 2007.

- **Successes and Challenges in the Determination of Neutron-Induced Rates**, Workshop on Experimental Opportunities for Nuclear Astrophysics at the Frankfurt Neutron Source of the Stern-Gerlach-Zentrum (FRANZ), FZ Karlsruhe and University of Frankfurt, Germany, May 2007.
- **Nuclear Physics in Astrophysics**, Swiss Institute of Particle Physics (CHIPP) Plenary Meeting, PSI, Villigen, Switzerland, October 2007.
- **The Origin of Nuclear Species and Evolution of the Universe**, Faculty of Physics, University of Vienna, Austria, November 2007.
- **Nucleosynthesis**, lecture series at the Sino-German Summer School on Cool Stars as Tools for Studying the Early Universe, Weihai, China, July 2008.
- **Neutrino-p process and the Lighter Element Primary Process (LEPP)**, 3rd Sino-German Workshop on Galactic Astronomy with LAMOST, Weihai, China, July 2008.
- **Stellar evolution and explosive nucleosynthesis**, lecture series at the TU Munich, München, Germany, September 2008.
- **Important Differences Between Reactions in the Laboratory and Reactions in Stars**, n_TOF Spring School, Florence, Italy, March 2009.
- **Nucleosynthesis in the Early and Contemporary Universe**, colloquium talk, Groupe de Recherche en Astronomie et Astrophysique du Languedoc (GRAAL), University of Montpellier, France, May 2009.
- **Astrophysical Reaction Rates for Explosive Nucleosynthesis**, Int. Conf. on Nucleus-Nucleus Collisions (NN '09), Beijing, China, August 2009.
- **Complications in Determining Stellar Reaction Rates for Explosive Nucleosynthesis**, 10th Int. Symp. on Origin of Matter and Evolution of the Galaxies (OMEG10), Osaka, Japan, March 2010.
- **Elemententstehung als Herausforderung an die Kernphysik** (Element synthesis as a challenge to nuclear physics), physics colloquium talk, TU Darmstadt, Germany, March 2010.
- **Explosive Nucleosynthesis and the p-Process**, Intl. Conf. “Nuclei in the Cosmos XI”, Heidelberg, Germany, July 2010.
- **Astrophysical and Nuclear Uncertainties in the Modelling of p-Process Nucleosynthesis**, Nuclear Physics Colloquium, Department of Physics, University of Cologne, Germany, November 2010.
- **Astrophysical reaction rates for proton- and neutron-rich nucleosynthesis (and connections to experiments)**, Workshop on Origin of Elements: A Modern Perspective, European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy, May 2011.
- **Origin of the p-Nuclides and Relevant Astrophysical Reaction Rates**, Workshop on p-Process: Present Status and Outlook, Istanbul, Turkey, May 2011.

- **Origin of the Elements as Challenge for Astrophysics and Nuclear Physics**, physics colloquium, Univ. of Frankfurt, Germany, September 2011.
- **Reaction Rates between the Driplines for Astrophysics**, THEXO Workshop, European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy, October 2011.
- **Network calculations and nuclear inputs for astrophysics close to stability**, WE-Heraeus Workshop on Astrophysics With Modern Small-Scale Accelerators, Bad Honnef, Germany, February 2012.
- **High-Energy Sites and the p-Nucleus Puzzle**, research colloquium, Department of Physics, UTSA, San Antonio, TX, March 2012.
- **Explosive nucleosynthesis and its connection to astrophysical reaction rates for unstable nuclei**, 11th Int. Conf. on Nucleus-Nucleus Collisions, San Antonio, TX, USA, May 2012.
- **New Insights into the α -Potential Mystery in the γ -Process**, THEXO Workshop, European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy, October 2012.
- **The p-Nucleus Puzzle**, Ortvay Colloquium, Eötvös-Loránd-University Budapest, Hungary, November 2012.
- **Introduction to Nucleosynthesis and Nuclear Astrophysics**, lecture series, MTA ATOMKI, Debrecen, Hungary, November 2012.
- **A Nuclear Physics View of the p-Nucleus Puzzle**, ATOMKI seminar, MTA ATOMKI, Debrecen, Hungary, January 2013.
- **How to correctly translate laboratory cross sections and MACS to stellar reaction rates for the s-process**, nTOF collaboration meeting, University of Manchester, UK, May 2013.
- **On the origin of the p-nuclei**, Workshop on Heavy Element Nucleosynthesis and Galactic Chemical Evolution, ITEP Moscow, Russia, September 2013.
- **Origin of the elements beyond Fe in stellar explosions - a continuing challenge for astrophysics and nuclear physics**, colloquium, Paul Scherrer Institut (PSI), Switzerland, May 2014.
- **Challenges in prediction and measurements of stellar rates for heavy element nucleosynthesis**, INT Program INT-14-2b on “Nucleosynthesis and Chemical Evolution: Recent Progress and Future Directions”, University of Washington, Seattle, WA, USA, August 2014.
- **Challenges in Nucleosynthesis of Nuclei beyond Fe**, 36th Int. School of Nuclear Physics, Erice, Italy, September 2014.
- **Calculations of reaction rates for the p process and their uncertainties**, Workshop on “p-Process: Status and Outlook”, Larnaca, Cyprus, June 2015.

- **Heavy Element Nucleosynthesis and its nuclear uncertainties**, Int. Conf. on “Nuclear Structure and Dynamics III”, Portoroz, Slovenia, June 2015.
- **Evolution of Massive Stars and their Nucleosynthesis**, CETUP* Neutrino Physics session 2015, Lead, SD, USA, July 2015.
- **Theory considerations in nucleosynthesis beyond Fe with special emphasis on p-nuclei**, 2nd BRIDGCE workshop “Stars, Supernovae and Nucleosynthesis”, Keele University, UK, September 2015.
- **Nucleosynthesis beyond Fe and related nuclear uncertainties**, Nuclear Physics Seminar, University of Surrey, UK, March 2016.
- **Quantifying Abundance Uncertainties in Nucleosynthesis Beyond Fe Through a Monte Carlo Approach**, XVIII Workshop on Nuclear Astrophysics, Ringberg Castle, Germany, March 2016.
- **Uncertainties in the γ -Process**, 3rd BRIDGCE workshop “Stars, Supernovae and Nucleosynthesis”, Keele University, UK, September 2016.
- **Explosive nucleosynthesis in the outer shells of massive stars**, NewCompStar Workshop on “Compact Objects, Their Equation of State, Related Explosive Events, and Their Nucleosynthesis”, Basel, Switzerland, September 2016.
- **Nuclear physics uncertainties in nucleosynthesis of s- and p-nuclei**, International Symposium on Origin of Matter and Evolution of Galaxies (OMEG), Daeyoun, Korea, June 2017.