Biographical Data

Carlos A. Bertulani

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Current Position:

Professor, Texas A&M University-Commerce, Commerce, USA.

Previous Faculty Positions:

- Professor, Physics Department, Federal University of Rio de Janeiro, Brazil, 1988-2000 (on leave 1991-1994).
- Assistant Professor, Physics Department, Federal University of Rio de Janeiro, Brazil, 1980-1983.

Visiting Faculty Positions:

- Research Professor, Department of Physics, University of Tennessee, Knoxville, USA, 2006-2007.
- Senior Scientist, Physics Division, Oak Ridge National Laboratory, Oak Ridge, USA, 2006-2007.
- Visiting Professor, Department of Physics, University of Arizona, USA, 2004-2006.
- Visiting Professor, National Superconducting Cyclotron Laboratory, Michigan State University, USA, 2002-2004.
- Guggenheim Fellow and Senior Researcher, Brookhaven National Laboratory, NY, USA, 2000-2001.
- Visiting Professor, Institut fuer Kernphysik III, Gesellschaft fuer Schwerionenforschung, Darmstadt, Germany, 1994.
- Visiting Professor, University of Wisconsin, Madison, USA, 1993.
- Visiting Professor, National Superconducting Cyclotron Laboratory, Michigan State University, USA, 1991-1992.

Degrees:

- Ph.D. (Nuclear Physics), University of Bonn, Germany, June 1987 - *Summa Cum Laude*.
- M.S. (Nuclear Physics), Federal University of Rio de Janeiro, Brazil, 1983.
- B.S. (Physics), Federal University of Rio de Janeiro, Brazil, 1980.

Grants, Awards, Fellowships and Honors:

- Department of Energy (DE-FG02-08ER41533), PI, 2008-2024 (has been renewed in 3 year cycles).
- National Science Foundation (Accelnet, PHY-2114669), Co-PI, 2021-2024.
- National Science Foundation (PHY-1415656), PI, 2014-2018.
- National Science Foundation – Research Experience for Undergraduates, Co-PI, 2011-2014.
- Department of Energy (DE-FG02-08ER41533), PI, 2011-2014.
- Department of Energy (DOE FOA 08-10), co-PI, collaborative, 2010-2014.
- Department of Energy (DE-FG02-08ER41533), PI, single investigator, 2008-2010.
- Department of Energy (DE-FC02-07ER41457), PI, single investigator, 2007-2011.
- Cotrell Corporation (ID: 10497), PI, single investigator, 2010-2011.
- National Science Foundation (ID: OISE-0921447), PI, Pan-American Advanced Institute 2010.
- Department of Energy (DE-FC02- ER41588), PI, single investigator, 2007.

- Department of Energy (DE-FC02-07ER41457), Oak Ridge National Lab, 2006.
- Department of Energy, Co-PI, 2005.
- Research Award: Program for Excellence in Research (PRONEX), Brazil, 1996-2000, Co-PI.
- Research Award: CNPq and CAPES, Brazil, 1997-2000. To fund 60-70 PhD students in the graduate study program of the Physics Department of the Federal University of Rio de Janeiro.
- Granted 3 times (as PI) an International US(NSF)-Brazil(CNPq) collaboration. Two with the University of Wisconsin at Madison, (US co-PI's: Kirk McVoy and A. Baha Balantekin) and one with Michigan State University (US co-PI's: Vladimir Zelevinsky and P. Gregers Hansen).

Honors:

- *APS Fellow.*
- *Fulbright Scholar.*
- *Guggenheim Fellow*.
- *Fellow Conselho Nacional de Desenvolvimento Científico e Tecnólogico*, Brazil. Highest rank.
- *Humboldt Fellowship*, KFA-Juelich.
- *Deutscher Akademische Austauschdienst Fellow*, Germany.
- *H.M. Lafferty Distinguished Faculty*, Texas A&M University-Commerce, USA.

Scientific Publications:

- Scientific Journals: *350+ articles* published in refereed international scientific journals.
- Conferences: 40+ *publications* in conference proceedings and participation in numerous conferences.
- Author of 6 textbooks for graduate and undergraduate students published with *Princeton Press*, IOP and *Nova Science* and *World Scientific*.
- Edited 5 Proceedings of International Conferences with World Scientific and North Holland.

Textbooks:

- "*Introduction to Nuclear Reactions*", with P. Danielewicz, CRC Press, London, 2021, ISBN13: 978-0367353629, 536 pages. For graduate students.
- "*Nuclei in the Cosmos*", World Scientific, 2013, 524 pages. https://doi.org/10.1142/8573. For graduate students.
- "*Nuclear Physics in a Nutshell*", Princeton Press, 2007, ISBN13: 978-0-691-12505-3, 473 pages. For graduate students.
- "*Introduction to Nuclear Physics*", with H. Schechter, Nova Publishers, Hauppage, NY, 2002, ISBN: 1-59033-358-6, 313 pages. For undergraduate students.
- "*Physics of Radioactive Beams*", with M. Hussein and G. Muenzenberg, Nova Publishers, Hauppage, NY, 2002, ISBN: 1-59033-141-9, 437 pages. For graduate students.
- "*Introdução a Física Nuclear*" (in Portuguese) with Helio Schechter, Editora da UFRJ, 2006, ISBN: 978-85-7108-288-5, 412 pages. For undergraduate students.

Books edited:

- *"Neutron Star Crust",* Eds. C.A. Bertulani and J. Piekarewicz, Nova Science Publishers, Hauppage, New York, 2012.
- *"International Nucleus-Nucleus Conference", Rio de Janeiro, Brazil,* Eds. C.A. Bertulani, M.S. Hussein and A. Szanto de Toledo and P.R.S. Gomes. Special volume of Nuclear Physics A, North-

Holland, Amsterdam, 2007.
- *"Collective Excitations in Fermi and Bose Systems: Proceeding of the International Workshop",* Serra Negra, Sao Paulo, Brazil, Eds. Carlos Bertulani, L. Felipe Canto and Mahir Hussein, World Scientific, Singapore, 1999.
- *"Physics of Unstable Nuclear Beams: Proceedings of the International Workshop",* Serra Negra, Brazil, Eds. Carlos A. Bertulani, L. Felipe Canto and M. S. Hussein, World Scientific, Singapore, 1997.
- *"Nuclear Physics: Proceedings of the VIII Jorge André Swieca Summer School by Brazil) Jorge Andre Swieca Summer School*", Campos Do Jordão, Brazil, eds. Carlos A. Bertulani, M. E. Bracco and B. V. Carlson, World Scientific, Singapore, 1997.
- "*Nuclear Physics: Proceedings of the V J.A. Swieca Summer School*", Campos do Jordão, Brazil, Ed. C.A. Bertulani (CNEN Publishing), Rio de Janeiro, 1992.

Administrative Positions & Committees:

- Secretary/Treasurer: Forum of International Physics of the American Physical Society (2019-2024).
- Chair: Texas Section of the American Physical Society (2019).
- Chair: Committee on Education of the American Physical Society (2014-2015).
- *Chair*: Graduate Program of Physics - Federal University of Rio de Janeiro, Brazil, 1997-1999. Member of Committees for Science funding (Group Grants, Postdoc Positions, PhD Fellowships) at the Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil, at the Coordenadoria de Aperfeiçoamento de Pessoal de Nível Superior, Brazil, at the Deutscher Akademischer Austauschdienst, Germany, at the Fundação de Amparo à Pesquisa do Estado de São Paulo, and at the Argentine Funding Agency PICT.
- Member of Department Committees (Strategic Plan, NSF and DOE Panels, Undergraduate Curriculum, Graduate Curriculum, Graduate Admissions, Recruitment & Prizes, Refereeing MS and PhD thesis).
- Panelist of the National Science Foundation on many occasions. Also as chair.
- Panelist of the Department of Energy on many occasions.
- Consultant for foreign funding agencies in Japan, Europe, South-Africa, Canada, and USA.
- Member of the Advisory Committees of several International Workshops and Conferences.
- Referee for several international scientific journals (~ 20 times/year), including "The Physical Review" and "Nuclear Physics" journals. European Journal of Physics and Nuclear Physics A "*Outstanding Referee*".
- Organizer (chair or co-chair) of about 20 international conferences and 4 international schools for graduate students.

Teaching Experience:

- *75 undergraduate and graduate courses taught in the past.*
- *Thesis supervisor of 4 Ph.D. students and 10 MS students.*
- 8 past postdoctoral fellows.

Organization of Meetings (selected, last 5 years):

° "*5th International Workshop on Quasi-Free Scattering with Radioactive-Ion Beams: QFS-RB 2023"*, Lefkada, Greece, October 1-6 2023.
° "*7th IEA International workshop Clustering aspects in nuclei and reactions"*, University of Sao Paulo, Brazil, March 13 - 17, 2023.

° *"Key Reactions in Nuclear Astrophysics",* Trento, Italy, December 12-16, 2022
° International Workshop *"Halo Week*", Bergen, Norway, July 10-15, 2022.
° "Int. Workshop: *Indirect Methods in Nuclear Astrophysics"* – ECT*, Trento, Italy. November 5-9, 2019.
° "4th International Workshop on *Quasi-Free Scattering with Radioactive-Ion Beams: QFS-RB 19*", Maresias, Brazil. October 13-18, 2019.

Invited Talks:

- *350+ talks* presented at several universities and labs in USA, Europe, Asia and South America.

10 Selected Publications (last 5 years)

1. *Core destruction in knockout reactions*, C.A. Bertulani, Phys. Lett. B 846, 138250 (2023).
2. *Coulomb-free pp scattering length from the quasi-free p + d --> p + p + n reaction*, A. Tumino, G.G. Rapisarda, M. La Cognata, A. Oliva, A. Kievsky, C.A. Bertulani, et al., Nature Comm. Phys. 6, 106 (2023).
3. *Direct Nuclear Reactions*, C.A. Bertulani and A. Bonaccorso, Book Chapter, Handbook of Nuclear Physics, Springer, pp. 1-35 (2022).
4. *Observation of a correlated free four-neutron system*, M. Duer, T. Aumann, R. Gernhaeuser, V. Panin, S. Paschalis, D. M. Rossi, N. L. Achouri, D. Ahn, H. Baba, C. A. Bertulani, et al., Nature 606, 678 (2022).
5. *Indirect methods in nuclear astrophysics with relativistic radioactive beams*, Thomas Aumann and Carlos A. Bertulani, Progress in Particle and Nuclear Physics 112, 103753 (2020).
6. *Neutron tunneling: A new mechanism to power explosive phenomena in neutron stars, magnetars, and neutron star mergers*, C.A. Bertulani and R. Lobato, Astrophys. J. 912, 105 (2021).
7. *Fission of relativistic nuclei with fragment excitation and reorientation*, Carlos A. Bertulani, Yasemin Kucuk, and Radomira Lozeva, Phys. Rev. Lett. 124, 132301 (2020).
8. *Indirect methods in nuclear astrophysics with relativistic radioactive beams*, Thomas Aumann and Carlos A. Bertulani, Progress in Particle and Nuclear Physics 112, 103753 (2020).
9. Book: *Focus Point on Rewriting Nuclear Physics textbooks: Basic nuclear interactions and their link to nuclear processes in the Cosmos and on Earth*, Nicolas Alamanos, Carlos Bertulani, Angela Bonaccorso, Angela Bracco, David M. Brink, Giovanni Casini, and Mauro Taiuti (2019).
10. *Assessing the foundation of the Trojan Horse Method*, C.A. Bertulani, M.S. Hussein and S. Typel, Phys. Lett. B 776, 217 (2018).