Emanuel Vicente Chimanski

Chimanski, E. V.; Emanuel V. Chimanski; E. V. Chimanski

Postdoctoral Research Staff Member

Education and Training

2015–2019 **Ph.D. in Science (Physics)**, *Aeronautics Institute of Technology – ITA*, Thesis: Extension of the Quantum formalism of MSD Reactions, Advisor: Prof. Dr. Brett V. Carlson (ITA) and Co-Advisor: Dr. Roberto Capote Noy (IAEA).

2013–2015 **Master in Science (Physics)**, *Aeronautics Institute of Technology – ITA*, Thesis: Route to hyperchaos in Rayleigh-Bénard convection, Advisor: Prof. Dr. Erico L. Rempel, Co-advisor: Dr. Roman Chertovskih.

2009–2013 **Physics degree**, *Universidade Estadual do Centro Oeste – UNICENTRO*, Thesis: Estatística de níveis em bilhares quânticos (Energy level Statistics in Quantum Billiards), Advisor: Prof. Dr. Eduardo Vicentini.

2021 **Machine Learning**, *Stanford|online*.

2021 **XX Jorge André Swieca Summer School on Theoretical Nuclear Physics**, *online-Brazil*.

2019 **XIX Jorge André Swieca Summer School on Theoretical Nuclear Physics**, *SP-Brazil*.

2016 **School on Effective Field Theory across Length Scales** , *South American Institute for Fundamental Research, ICTP-SAIFR, Brazil*.

2016 **School on Physics Applications in Biology at South American Institute for Fundamental Research, ICTP-SAIFR, Brazil**.

2014 **Topycs in Computational Cosmology at Instituto Nacional de Pesquisas Espaciais**, *INPE,Brazil*.

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2009–2015 **English Course**, *Wizard Brasil*.

Appointments

2019–present **Postdoctoral Research Staff Member (Physical and Life Sciences Directorate, Nuclear and Chemincal Sciences Division)**, *Lawrence Livermore National Laboratory – LLNL*, Nuclear Structure and Nuclear Reactions, Supervisor: Dr. Jutta Escher and Dr. Walid Younes. Reporting to Bret Beck..

2018 (Sep-Dec) **Ph.D. visiting student at Florida State University (FSU – Tallahassee/Florida– US) in the Physics Department**, Supervisor: Dr. Alexander Volya.

2017–2018 **Ph.D. internship at International Atomic Energy Agency (IAEA – Vienna/Austria) in the Nuclear Data Development Unit**, Supervisor: Dr. Roberto Capote Noy.

Awards and Leadership Roles

- My publication "Quasiparticle nature of excited states in random-phase approximation" was selected as Top 10 contributions in the quadrennium of the Post-Graduation Program. Phys. Rev. C 99 014305 (2019).
- Vice-chair of the APS chapter at the Lawrence Livermore National Laboratory (LLNL) – 2021.

Languages

Portuguese native

English writing: good, reading: good, speaking: good

Computer skills

Operational system.

- GNU/Linux.

Programming.

- FORTRAN90
- GNU Octave
- Python including: numpy, numba, tensorflow, scikit-learn
- LaTeX.

Research and work experience

2019 – present **Postdoctoral at Lawrance Livermore National Laboratory (LLNL), Livermore/CA – US**, *Surrogate nuclear reactions and deformed nuclei*.

2018 **Visiting Student at the Florida State University (FSU) (Physics Dep.), Tallahassee/Florida – US**, *Collective states and Random Matrix*.

2017 – 2018 **Intern at the International Atomic Energy Agency – IAEA (Nuclear Data Development Unit), Vienna/Austria**, *Nuclear Reaction Models, Pre-Equilibrium Reactions*.

2013 – 2019 **Aeronautics Institute of Technology – ITA, SP/Brazil**, *Classical/Quantum Chaos, Mathematical Modelling, Nuclear Physics, Nuclear Reactions*.

2011–2013 **Universidade Estadual do Centro Oeste – UNICENTRO, PR/Brazil**, *Quantum chaos and quantum billiards*.

Teaching experience

2015 **FIS-14 Physics (mechanics) laboratory**, *Assistant teacher under supervision of Prof. Dr. José Silvério Edmundo Germano, Aeronautics Institute of Technology – ITA*.

2012 **Fundamental Physics I**, *Assistant teacher under supervision of Prof. Dr. Ricardo Yoshimitsu Miyahara, Universidade Estadual do Centro Oeste – UNICENTRO*.

Publications

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Published.

- E. V. Chimanski, and B. V. Carlson. Nucleon-induced inelastic scattering with statistical strength functions and the ECIS direct reaction code. EPJA, (2021).
- Chimanski, E.V., Souza, L.A., Carlson, B.V. The São Paulo Potential and the 3He Breakup Reaction at 130 MeV on 93Nb and 197Au. Braz J Phys 51, 323-327 (2021).
- E. V. Chimanski, B. V. Carlson, R. Capote, A J Koning. Quasiparticle nature of excited states in random-phase approximation. *Phys. Rev. C* **99** 014305 (2019).
- E. V. Chimanski, R. Capote, B. V. Carlson and A J Koning. Statistical multi-step direct reaction models and the eikonal approximation *CERN Proceedings series of the 15th edition of the Varenna Conference on Nuclear Reaction Mechanisms*(2018).
- E. V. Chimanski, B. V. Carlson, R. Capote and A J Koning. The role of nucleon knockout in pre-equilibrium reactions *CERN Proceedings series of the 15th edition of the Varenna Conference on Nuclear Reaction Mechanisms*(2018).
- Hussein, Mahi S. ; Souza, Lucas A. ; Chimanski, Emanuel ; Carlson, Brett; Frederico, Tobias. Inclusive Breakup Theory of Three-Body Halos. *EPJ Web of Conferences* (2017).
- R. Chertovskih, E. L. Rempel and E. V. Chimanski. Magnetic field generation by intermittent convection, *PLA* (2017).
- R. Chertovskih, E. V. Chimanski and E. L. Rempel. Route to hyperchaos in Rayleigh-Bénard convection, *EPL*, **112** (2015) 14001.
- Emanuel V. Chimanski, Erico L. Rempel, Roman Chertovskih. On-off intermittency and spatiotemporal chaos in three-dimensional Rayleigh-Bénard convection,*Advances in Space Research*, **57** (2016), 1440-1447.

In preparation and submitted.

- L. A. Souza, E. V. Chimanski, T. Frederico, B. V. Carlson, M. S. Hussein. Four-body eikonal approach to three-body halo nuclei scattering. (https://uk.arxiv.org/abs/1806.06278v1)
- E. V. Chimanski, B. V. Carlson, R. Capote, A J Koning. Extension to the Multi-Step Direct Model.
- Manuel Schottdorf, Emanuel V. Chimanski and Ulf Dieckmann. Universality in evolution.

Books and Chapters.

- Chimanski, E. V., Martins, C. G. L., Chertovskih, R., Rempel, E. L., Roberto, M., Caldas, I. L., Chian, A. C.-L. Intermittency and transport barriers in fluids and plasmas, In: From nonlinear dynamics to complex systems: A Mathematical modeling approach, Springer, Elbert E. N. Macau (Ed.), Springer. (https://doi.org/10.1007/978-3-319-78512-7_5)

Others

Scientific Societies.

- Brazilian Society of Physics
- American Physical Society

Reviewer.

- Proceedings for the CNR*18 published online and in print by Springer Nature.
- Communications in Nonlinear Science and Numerical Simulation.
- Brazilian Journal of Physics.

Invited Talks.

- Nuclear and Chemical Sciences Division (NACS), LLNL 2021.
- Department of Physics of Fluminense Federal University Cariri – RJ/Brazil, 2020
- Department of Physics of Federal University of Cariri – CE/Brazil, 2020
- CEA, DAM, DIF, Bruyères-le-Châtel, France, June-2018
- Lawrence Livermore National Laboratory – LLNL - Livermore/California – US, September-2018.
- Department of Physics, Florida State University – FSU - Tallahassee/Florida – US , November-2018.
- Department of Physics and Astronomy Texas A&M University - Commerce/Texas – US, November-2018

Conferences, meetings and workshops. Talk * and poster † contribution.

- Nuclear Data Week 2020 - CSEWG meeting. 2020.
- Division of Nuclear Physics Meeting (DNP—APS) 2020.
  - Improving Inelastic Scattering Descriptions: Reaction Theory for Deformed Targets with the QRPA *.
- Brazilian Meeting on Nuclear Physics 2020.
  - Nucleon Induced Reactions Theory for Deformed Target Nuclei: Angular Momentum Restoration and the QRPA *.
  - Inclusive Emissions from 3He Breakup Reaction on Medium and Heavy Targets †.
- Far West Section Meeting (FWS – APS) 2020.
  - Combining State-of-Art Nuclear Structure Theory with Modern Reaction Descriptions: Nucleon-Induced Reactions.
- 2019 Fall Meeting of the APS Division of Nuclear Physic. October 14-17, 2019; Crystal City, Virginia.
  - Improved Inelastic Scattering Descriptions for Nuclear Data Evaluations, Nuclear Structure and Reaction Studies *.
- 6th International Workshop on Compound-Nuclear Reactions and Related Topics (CNR*18), 2018.
  - Multi-step direct reaction models including collectivity in nucleon induced reactions*.
- 15th International Conference on Nuclear Reaction Mechanisms, 2018.
  - Statistical multi-step direct reaction models and the RPA*.
- XL Brazilian Meeting on Nuclear Physics, 2017.
  - One- and two-step direct cross sections for nucleon-induced reactions*.
  - Reactions and structure of three-fragment weakly bound nuclei†.
- Physics meeting, 2016.
  - Quasi-Particle – Quasi-Hole Nature of High Energy RPA Modes†.
- 6th International Conference on Nonlinear Science and Complexity, 2016.
  - Route to hyperchaos and Intermittency in Rayleigh-Bénard convection*.
- National Meeting of Statistical Physics, 2015.
  - Leaking square quantum billiards†.
- Tenth Latin American Conference on Space Geophysics, 2014.
  - Route to hyperchaos in Rayleigh-Bénard convection†.
- Brazilian National Meeting on Condensed Matter Physics, 2012.
  - Influence of obtuse and acute angles in statistic of energy levels of quantum polygonal billiards†.
- Physics meeting, 2011.
  - Energy levels statistics in quantum obtuse triangular billiards†.

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