

List of Publications - Nuclear Astrophysics Group 2017-2019

On nuclear astrophysics – direct and indirect methods topics

1. I. Stefanescu, A. Chilug, D. Tudor, L. Trache, M. Straticiuc, I. Burducea, I. M. Focsa, D. G. Ghita, N. Zhang, X. Tang, and H. Chen, **AIP Conference Proceedings** **1852**, 080011 (2017).
In-beam measurements of $^{13}\text{C}+^{12}\text{C}$ fusion reaction cross section at energies around and below Coulomb barrier
2. D. Tudor, A. I. Chilug, I. C. Stefanescu, M. Straticiuc, I. Burducea, L. Trache, I. M. Focsa, D. G. Ghita, R. Margineanu, A. Pantelica, C. Gomoiu, N. T. Zhang, X. Tang, and H. Chen, **AIP Conference Proceedings** **1852**, 080012 (2017).
Activation measurements of $^{13}\text{C}+^{12}\text{C}$ fusion cross section at deep sub-barrier energies in IFIN-HH
3. A. Tumino, C. Spitaleri, M. La Cognata, S. Cherubini, G. L. Guardo, M. Gulino, S. Hayakawa, I. Indelicato, L. Lamia, H. Petrascu, R. G. Pizzone, S. M. R. Puglia, G. G. Rapisarda, S. Romano, M. L. Sergi, R. Spartá & L. Trache, **Nature** **557** Issue: 7707 Pages: 687 (2018). <https://doi.org/10.1038/s41586-018-0149-4>
An increase in the $\text{C-12}+\text{C-12}$ fusion rate from resonances at astrophysical energies
4. I.C. Stefanescu, A. Spiridon, L. Trache, E. Pollacco, A. Saastamoinen, B. Roeder, *J. Phys.: Conf. Ser.* **1024**, 012007 (2018).
AstroBox2E: a detection system for very low energy β -delayed proton decay
5. Trache, Livius, in Conference: 8th International Conference on Nuclear Physics in Astrophysics (NPA8) Location: Lab Nazionali Sud, Catania, ITALY Date: JUN 18-23, 2017, NUCLEAR PHYSICS IN ASTROPHYSICS VIII (NPA8 2017) Book Series: EPJ Web of Conferences Volume: **165** Article Number: UNSP 02007.
["Other" indirect methods for nuclear astrophysics](#)
6. Burjan, V.; Hons, Z.; Kroha, V.; L. Trache et al., in Proc. 8th International Conference on Nuclear Physics in Astrophysics NPA8, Lab Nazionali Sud, Catania, Italy, JUN 18-23, 2017, NUCLEAR PHYSICS IN ASTROPHYSICS VIII (NPA8 2017) Book Series: **EPJ Web of Conferences** Volume: **165**, Article Number: UNSP 01007.
[The astrophysical S-factor of the direct \$\text{O-18}\(p, \gamma\)\text{F-19}\$ capture by the ANC method](#)
7. Gulino, Marisa; Cherubini, Silvio; Rapisarda, Giuseppe Gabriele; et al., Conference: 9th European Summer School on Experimental Nuclear Astrophysics Location: Catania, ITALY Date: SEP 17-24, 2017. 9TH EUROPEAN SUMMER SCHOOL ON EXPERIMENTAL NUCLEAR ASTROPHYSICS Book Series:

EPJ Web of Conferences Volume: 184 Article Number: UNSP 01008 Published: 2018.

Trojan Horse Method experiments with radioactive ion beams

8. Burjan, V.; Hons, Z.; Kroha, V.; et al., **EUROPEAN PHYSICAL JOURNAL A** Volume: **55**, Article Number: 114. Published: JUL 23, 2019.
The determination of the astrophysical S-factor of the direct O-18(p, gamma)F-19 capture by the ANC method
9. Chilug, A. I.; Panin, V.; Tudor, D.; et al., Group Author(s): HI-p Collaboration EXOTIC NUCLEI AND NUCLEAR/PARTICLE ASTROPHYSICS (VII) – PHYSICS WITH SMALL ACCELERATORS Book Series: **AIP Conference Proceedings**, Volume: **2076**, Article Number: UNSP 060001. Published: 2019.
Study of the C-9 Breakup Through NP1412-SAMURAI29R1 Experiment
10. Stefanescu, I. C.; Trache, L.; Chilug, A. I.; et al., EXOTIC NUCLEI AND NUCLEAR/PARTICLE ASTROPHYSICS (VII) – PHYSICS WITH SMALL ACCELERATORS, Book Series: **AIP Conference Proceedings**, Volume: **2076**, Article Number: UNSP 060008. Published: 2019.
Decay Spectroscopy As A Tool For Nuclear Astrophysics
11. Trache, Livius, in EXOTIC NUCLEI AND NUCLEAR/PARTICLE ASTROPHYSICS (VII) – PHYSICS WITH SMALL ACCELERATORS, Book Series: **AIP Conference Proceedings**, Volume: **2076**, Article Number: UNSP 070001. Published: 2019.
The Outreach Sessions
12. Alexandra Spiridon et al – in EXOTIC NUCLEI AND NUCLEAR/PARTICLE ASTROPHYSICS (VII) – PHYSICS WITH SMALL ACCELERATORS, Book Series: **AIP Conference Proceedings** Volume: **2076** Article Number: UNSP 060007 Published: 2019.
Elastic studies with the upgraded TAMU-MDM detector
13. Alexandra Spiridon, Emmanuel Pollacco, Antti Saastamoinen, Robert E. Tribble, George Pascovici, Livius Trache, Bertrand Mehl, Rui de Oliveira, **Nucl. Inst. & Meth. in Phys. Res. A** **943**, (2019) 162461. <http://arxiv.org/abs/1907.03596>
A study in using MICROMEAS to improve particle identification with the TAMU-MDM focal plane detector
14. D. Tudor, L. Trache, Alexandra I. Chilug, Ionut C. Stefanescu, Alexandra Spiridon, Mihai Straticiuc, Ion Burducea, Ana Pantelica, Romulus Margineanu, Dan G. Ghita, Doru G. Pacesila, Radu F. Andrei, Claudia Gomoiu, Ning T. Zhang, Xiao D. Tang, **Nucl. Instr. & Meth. in Phys. Res. A** **953** (2020) 163178.
A facility for direct measurements for nuclear astrophysics at IFIN-HH -- a 3 MV tandem accelerator and an ultra-low background laboratory
15. N. T. Zhang, X. Y. Wang, H. Chen, Z. J. Chen, W. P. Lin, W. Y. Xin, S. W. Xu, D. Tudor, A. I. Chilug, I. C. Stefanescu, M. Straticiuc, I. Burducea, D. G. Ghita, R. Margineanu, C. Gomoiu, A. Pantelica, D. Chesneanu, L. Trache, X. D. Tang,

- B. Bucher, L. R. Gasques, K. Hagino, S. Kubono, Y. J. Li, C. J. Lin , et al.
Submitted to **Phys. Lett. B**, Sep. 2019.
Constraining the $^{12}\text{C}+^{12}\text{C}$ astrophysical S-factors with the $^{12}\text{C}+^{13}\text{C}$ measurements at very low energies
16. A. Chilug, D. Tudor, A. Spiridon, I. Stefanescu, L. Trache, ...et al, in *Proc. Nucleus-Nucleus Collisions 2018, Saitama, Dec. 2018, Japan Phys. Soc. Conf. Ser.*, accepted July 2019.
 17. L. Stuhl, ... A. Chilug, D. Tudor, A. Spiridon, I. Stefanescu, L. Trache, ...et al, **Nucl. Instr. & Meth. B**, accepted 2019, in press.
Study of spin-isospin response of ^{11}Li neutron drip line nucleus with PANDORA
 18. L. Trache, in *Proc. ESSENA 2019, Eur. Phys. J. Conf. Ser.*, accepted Sep. 2019.
Nuclear astrophysics studies at NIPNE
 19. A. Saastamoinen, E. Pollacco, B.T. Roeder, R. Chyzh, L. Trache, R.E. Tribble, **Nucl. Instr. & Meth. B**, accepted May 2019, in press.
Studies of systematic effects of the AstroBox2 detector in online conditions
 20. A. Tumino, C. Spitaleri, M. La Cognata, S. Cherubini, L. Guardo, M. Gulino, S. Hayakawa, I. Indelicato, L. Iamia, H. Petrascu, R.G. Pizzone, S.M.R. Puglia, G.G. Rapisarda, S. Romano, M.L. Serghi, R. Sparta and L. Trache, **Il Nuovo Cimento 42 C** (2019) 55.
Uncovering carbon burning in stars.
 21. F. Carstoiu, M. Lassault and L. Trache, **Rom. J. Phys. 65** (2020) 301
Rainbow extinction, orbiting and Regge poles
 22. Livius Trache and Florin Carstoiu, arXiv: <http://arxiv.org/abs/1911.06077>
Indirect methods in Nuclear Astrophysics

Books:

1. **Livius Trache and Dan Gabriel Ghita (eds.)** *Exotic nuclei and nuclear/particle astrophysics (VI) - Physics with small accelerators. Proceedings of the Carpathian Summer School of Physics 2016 (CSSP16).* Book Series: **American Institute of Physics Conference Proceedings**, Volume: 1852, Melville, New York, 2017.
2. **Livius Trache and Alexandra Spiridon (eds.)**, *Exotic nuclei and nuclear/particle astrophysics (VII) - Physics with small accelerators. Proceedings of the Carpathian Summer School of Physics 2018 (CSSP18).*

Book Series: **American Institute of Physics Conference Proceedings**,
Volume: 2076, Melville, New York, 2019.

<https://aip.scitation.org/toc/apc/2076/1?expanded=2076>