

***Carpathian Summer School of Physics 2018***  
**Exotic Nuclei and Nuclear/Particle Astrophysics (VII).**  
**Physics with small accelerators**  
**July 1-14, 2018, Sinaia, Romania**

## Report

This is a brief report on the **Carpathian Summer School of Physics 2018** that was held this summer July 1<sup>st</sup> - 14<sup>th</sup>, 2018, in Sinaia, Romania. It was the 28<sup>th</sup> edition of a long tradition. This year the title of the event was:

**"Exotic Nuclei and Nuclear/Particle Astrophysics (VII).**  
**Physics with small accelerators"**

and is the **7th** in the latest series with the same title organized in Mamaia (2005) and Sinaia (2007, 2010, 2012, 2014 and 2016) and keeping the topic "Physics with small accelerators", which was added in 2016. It was hosted again in Sinaia, Romania, on the Conference Center of hotel "International". The school is part of the **European Network of Nuclear Astrophysics Schools (ENNAS)**, together with the **European Summer School on Experimental Nuclear Astrophysics, ESSENA** (Santa Tecla, Italy) and the **Russbach School on Nuclear Astrophysics, RSNA** (Russbach am Pass Gschütt, Austria). ENNAS is endorsed by the Nuclear Physics Board of EPS and is supported by ENSAR2, a project of the European Horizon 2020 program, through NUSPRASEN. The additional flavor brought by the explicit inclusion of subjects related to physics with small accelerators (fundamental or applied research) turned out to be a plus again, because of the exchange of ideas that was facilitated thru the presence of people, experts or beginners, with different competences and interests.

The format of the latest editions was kept: the **first week** of the event was closer to a school-like format defined by a series of courses up to 2 hours each, aimed at graduate students, post-docs and young researchers. The **second week** had a conference-like format, with 1 hour invited lectures. Students and young researchers gave 20 min. short communications (distributed over both weeks). The first day (July 2<sup>nd</sup>) was dedicated to introductory lectures. Most of the topics related to applications were concentrated in the first week, which included also two days (July 5-6) reserved for the special sessions "*ELI-NP. Status and Perspectives*". On this occasion many laser specialists from ELI-NP and from outside Romania, have joined the school.

Topics announced were like the ones in past years, including accelerator applications explicitly:

- **Exotic nuclei**
- **Nuclear physics with RIBs**
- **Nuclear physics for astrophysics**
- **Stellar evolution. Neutron stars and supernovae**
- **Astroparticle physics**
- **Stellar and laser induced plasmas**
- **Physics at ELI-NP**
- **Applications at small accelerators**
- **Nuclear astrophysics with small accelerators**
- **Instrumentation**
- **Accelerators for medical treatments, radioisotope production and industrial applications**

The “Horia Hulubei” National Institute for Physics and Nuclear Engineering (IFIN-HH) Bucharest-Magurele was the sole institutional organizer of the school.

*Organizing Committee:*

Livius Trache and Ovidiu Tesileanu: *chairs*

Mihai Straticiuc and Tiberiu Sava: *scientific secretaries*

Ion Burducea, Alexandra Spiridon, Ionut Stefanescu, Doru Pacesila and Dan Ghita

The **International Advisory Committee** established at the end of 2017 was made of reputable scientists and academics, many of which have joined us to present lectures, talk with students and among themselves:

**C. Bertulani (Commerce, TX)**

**C. Diaconu (Marseille)**

**M. El Eid (Beirut)**

**F. Ferroni (Rome)**

**Z. Fulop (Debrecen)**

**S. Gales (Bucharest)**

**U. Garg (Notre Dame)**

**J. Jose (Barcelona)**

**A. J. Jull (Tucson)**

**T. Kajino (Tokyo)**

**K.H. Kampert (Wuppertal)**

**K.-L. Kratz (Mainz)**

**W. Kutschera (Vienna)**

**K. Langanke (Darmstadt)**

**A. Mackova (Prague)**

**N. Marginean (Bucharest)**

**T. Motobayashi (Tokyo)**

**A. Petrovici (Bucharest)**

**N. Pietralla (Darmstadt)**

**H. Rebel (Karlsruhe)**

**T. Sajavaara (Jyvaskyla)**

**Ch. Scheidenberger (Giessen)**

**B. Sharkov (Dubna)**

**O. Sorlin (Caen)**

**C. Spitaleri (Catania)**

**H.-A. Synal (Zurich)**

**T. Uesaka (Wako)**

**M. Wiescher (Notre Dame)**

**N. V. Zamfir (Bucharest)**

Students from Romania, from the surrounding regions and all countries were invited to attend. A limited number of stipends (8 full + 4 partial) to cover the local expenses for students were available. In total there were 92 participants:

- 58 from Romanian institutions: 4 institutes, 2 universities and 2 companies
- 34 from institutions outside the country: 12 institutes and 21 universities who presented 70 lectures and 18 student communications (oral, 20 minutes each).

On Saturday July 7 we had the traditional outreach session of the school with the subject: **“How one prepares the next generation of scientists in the age of instant communication”** where we invited guests from Romanian academia and media representatives.

Sponsors of the school were *IFIN-HH as organizing institutions*, the *Romanian Ministry for Research and Innovation (MCI)*, *ENSAR2 through the NUSPRASEN network*, and the exhibitors *CAEN, Wiener, Canberra, Coralgon, Pfeiffer, BSI, Bruker, Total Spectrum, iseg, Quantech Works* (logos below). Moreover, most of the participants were supported by their respective institutions, a fact which contributed to existence and the success of the school and which makes these institutions be our sponsors too. We thank them all!

One “Thank you!” of appreciation was that CSSP18 was declared a success by all participants, appreciated both for the quality of science and organization. Participants recommended during the discussions in the Closing session, on Friday, July 14th:

- To continue this school with a new edition in 2020
- To continue its affiliation with ENNAS

See the website for the closing remarks:

<http://www.nipne.ro/indico/getFile.py/access?sessionId=95&resId=0&materialId=0&confId=368>

The Proceedings of CSSP18 will be published again with the prestigious “AIP Conference Proceedings” series of the American Institute of Physics AIP Conference Proceedings, in Open Access.

For the CSSP18 Organizing Committee

Livius Trache

Ovidiu Tesileanu

Co-chairs

