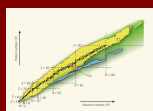


# Rewriting Nuclear Physics textbooks 30 years with Radioactive Ion Beam Physics

Pisa (Italy), July 20<sup>th</sup> – 24<sup>th</sup>, 2015



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*Students from all over the world gather together to learn about the wonders of the Physics with Exotic Nuclei*

## Featuring as special guests

Björn Jonson, Chalmers, Göteborg, Sweden  
Isao Tanihata, RCNP, University of Osaka, Japan

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Angela Bonaccorso, INFN, Pisa (chair)  
Giovanni Casini, INFN, Florence (co-chair)  
Ignazio Bombaci, Department of Physics, University of Pisa  
Laura Elisa Marcucci, Department of Physics, University of Pisa  
Alejandro Kievsky, INFN, Pisa  
Valeria Rosso, Department of Physics, University of Pisa  
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The scope of the activity is twofold. First we will celebrate 30 years since the first genuine work on radioactive ion beams (RIBs) used to study properties of atomic nuclei. Since then Low Energy Nuclear Physics research fed by experiments at various facilities all over the world has experienced a great revival supported by widespread theoretical efforts which have changed deeply our understanding of nuclei and their interactions.

The second scope of the event is to attract and educate the best possible students introducing them to the wonders of Physics with RIBs. We shall try to convey to such students a view of the rich variety of on-going activities in the field, both experimental and theoretical such that the progresses we have made in the last 30 years can be developed further in the future. The planned activities will be directed towards students who are in the process of deciding what graduate studies to specialize.

## Program

- Isao Tanihata (Osaka and Beijing)
  - Magda Kowalska (CERN, Geneva)
  - Riccardo Raabe (Leuven)
  - Giovanna Benzoni (Milano)
  - Sonia Bacca (TRIUMF, Vancouver)
  - Stefan Typel (GSI)
  - Robert J. Charity (St Louis)
  - Tomohiro Uesaka (RIKEN)
  - Alexandre Obertelli (Saclay)
  - Andrea Jungclauss (Madrid)
  - Lucio Gialanella (Napoli)
  - Ulli Koester (ILL-Grenoble)
  - Bjorn Jonson (Göteborg)
- How it all started  
Global properties of atomic nuclei: masses, radii and modern methods to measure them  
Making radioactive ion beams, detecting reaction products  
Strong, weak and electromagnetic forces at work in atomic nuclei, decay properties  
Structure models: from shell model to ab initio methods  
Reaction theory  
Resonance phenomena: from compound nucleus decay to proton radioactivity  
Experimental methods and measured observables with polarized proton targets: understanding spin-orbit  
Probing nuclear structure with direct reactions: observables, methods and recent progress with rare isotopes  
Single particle versus collectivity, shapes of exotic nuclei  
Radioactive ion beams in experimental nuclear astrophysics  
Applications of physics of unstable nuclei to energy, medicine, material science  
What's next in Nuclear Physics with RIBs

24/7/2015: Visit to the INFN Legnaro National Laboratory where SPES, the Italian RIB's facility is under construction

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<http://exotic2015.df.unipi.it>



Poster designer: Ignazio Bombaci

# Besides the lecturers, special thanks to the

- **Tutors**

## **China**

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## **Begium/France**

Pierre Descouvemont (*Bruxelles*)

Stéphane Grévy (*Bordeaux*)

## **Canada/Finland/Germany/Japan/UK**

Andrei Andreyev (*York*)

Stefan Typel (*GSI*)

## **Italy**

Gianluca Colò (*Milano*)

Alessia Di Pietro (*INFN - LNS*)

Lorenzo Fortunato (*Padova*)

Jose Javier Valiente Dobon (*INFN - LNL*)

## **Spain**

Antonio Moro (*Sevilla*)

Dolores Cortina-Gil (*Santiago de Compostela*)

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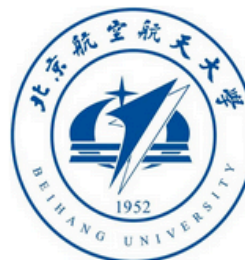




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# Finally thanks to

Björn Jonson and Isao Tanihata for having been with us and for making the last thirty years of our lives so exciting.

