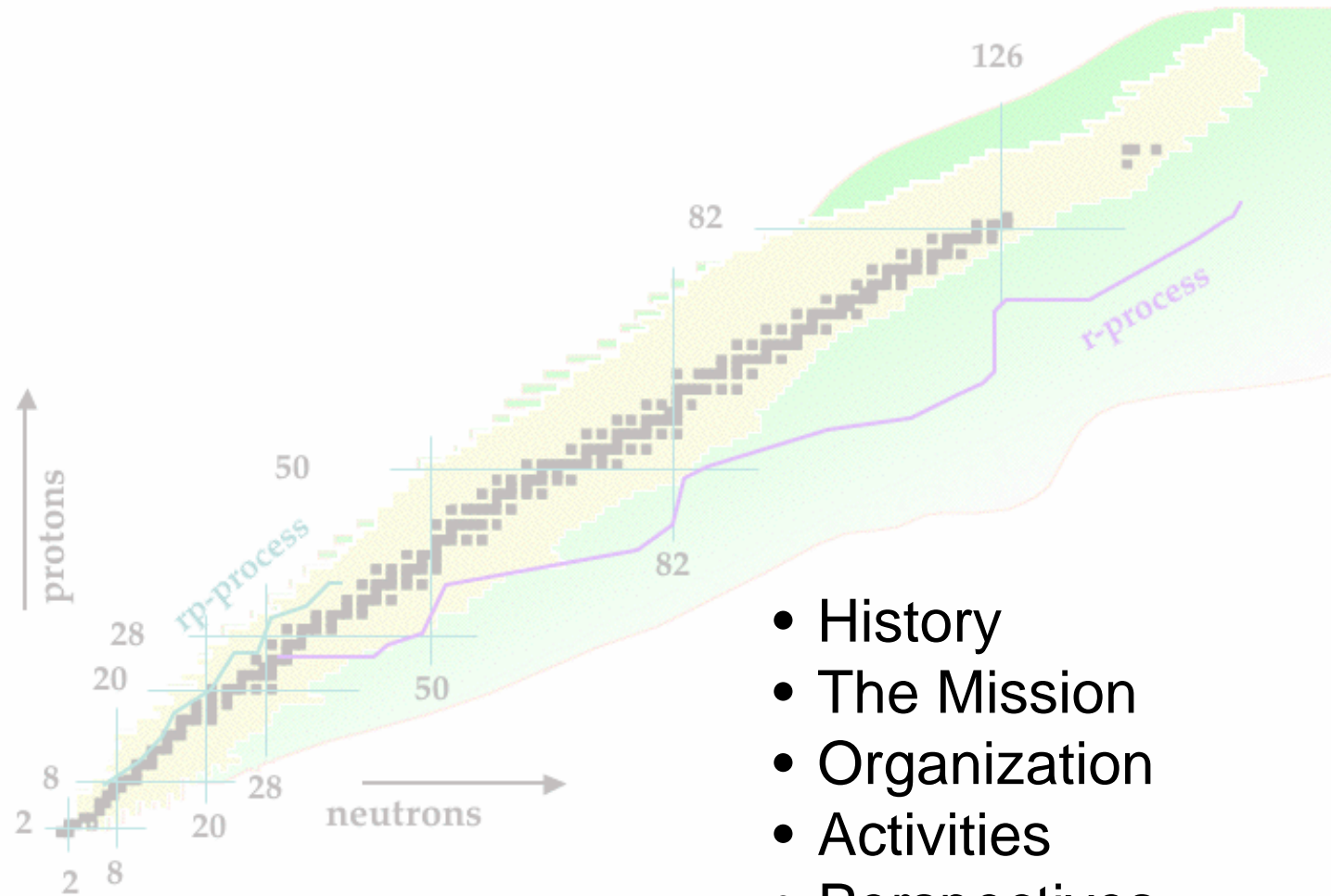


# The RIA Users Organization (RIAUO)

Witold Nazarewicz (Tennessee)

EURISOL Week, CERN, November 2006



- History
- The Mission
- Organization
- Activities
- Perspectives

# The life before RIAUO

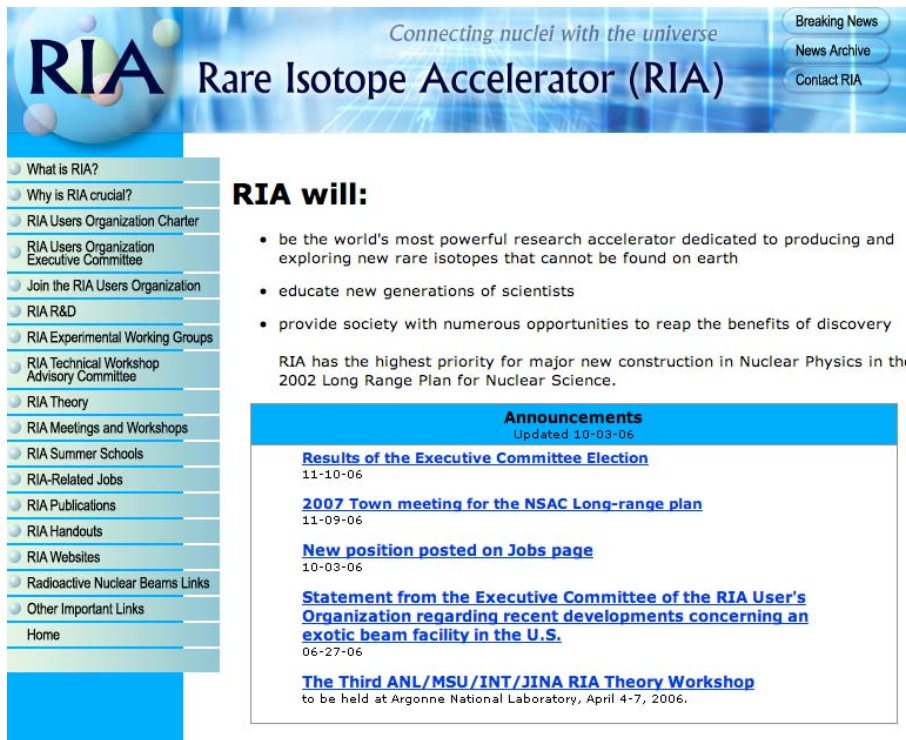
- Community fragmented (small groups, various interests)
- Lack of common intellectual focus (vision thing)
- Lack of coherent science program (connections)
- Tribal wars between interest groups/labs (fractions)
  
- No advocate/reliable agencies partner
- A stark contrast to well-organized RHIC and JLAB communities

# The RIA Users Organization

- RIA Working Group Steering Committee, formed Fall 2002 (14 members)
- Charter ratified unanimously in September 2004

RIA Users Group  RIA Users Organization

<http://www.orau.org/ria/>



The screenshot shows the RIA Users Organization website. The header features the RIA logo and the tagline "Connecting nuclei with the universe". Below the header is a navigation menu with links such as "What is RIA?", "Why is RIA crucial?", "RIA Users Organization Charter", "Join the RIA Users Organization", "RIA R&D", "RIA Experimental Working Groups", "RIA Technical Workshop Advisory Committee", "RIA Theory", "RIA Meetings and Workshops", "RIA Summer Schools", "RIA-Related Jobs", "RIA Publications", "RIA Handouts", "RIA Websites", "Radioactive Nuclear Beams Links", "Other Important Links", and "Home". The main content area includes a "RIA will:" section with three bullet points, an "Announcements" section with four links and dates, and a "Principal Interest:" section with four categories and their respective user counts.

## RIA will:

- be the world's most powerful research accelerator dedicated to producing and exploring new rare isotopes that cannot be found on earth
- educate new generations of scientists
- provide society with numerous opportunities to reap the benefits of discovery

RIA has the highest priority for major new construction in Nuclear Physics in the 2002 Long Range Plan for Nuclear Science.

## Announcements

[Results of the Executive Committee Election](#)  
11-10-06

[2007 Town meeting for the NSAC Long-range plan](#)  
11-09-06

[New position posted on Jobs page](#)  
10-03-06

[Statement from the Executive Committee of the RIA User's Organization regarding recent developments concerning an exotic beam facility in the U.S.](#)  
06-27-06

[The Third ANL/MSU/INT/JINA RIA Theory Workshop](#)  
to be held at Argonne National Laboratory, April 4-7, 2006.

**Total users:** >800  
>610 (experiment)  
>190 (theory)  
>35 countries

## Principal Interest:

Struct/React (580)  
Acc/Tech/Apps (95)  
Astrophysics (90)  
Fundamental (35)

## Info on:

- RIA Science & Reports
- RIA Project
- RIAUO
- RIA R&D
- RIA Experimental working groups
- RIA Theory
- RIA Meetings and workshops
- RIA Summer Schools
- RIA-related Jobs

# RIAUO Mission

The RIA Users' Organization is a group whose members are interested in the Rare Isotope Accelerator (RIA) for the purpose of conducting scientific research and developing new technology. **The purposes of this association are:**

- (a) To work towards the realization and timely construction of RIA
- (b) To articulate and promote the scientific case for RIA and its significance to society
- (c) To promote and enhance the RIA research and development effort and other RIA related activities to maximize its scientific potential
- (d) To act as an advocate for the needs of the RIA users

**The membership of the RIA Users' Organization** is open to all practicing scientists, engineers, and students interested in the research and/or technical programs associated with RIA. New members will be added upon receipt of requests submitted on the RIA User's web site

*“The members of the Executive Committee are expected to articulate the needs and priorities of the users group to the funding agencies and, in the future, to the RIA management. **The Executive Committee also provides a direct interface between the funding agencies, the future RIA management and the user community**” (RIAUO Charter)*

# The RIA Users Organization Activities

- Science Case (never a steady state!)
  - Brochures, handouts
  - Targeted material and public relation stuff
  - Annual workshops
  - Town meetings
- Annual user meeting (usually at the DNP Fall meeting)
- Representing RIA users (Long Range Planning activities, meetings with Agencies, Labs, Organizations)
- RIA Summer Schools (2002-2006)
- Lobbying (Letter-writing campaigns, RIA Day in DC in May, 2005)
- Organization of experimental working groups
- Keeping community informed (current events, R&D, solicitations, meetings)
- RIA-related jobs clearinghouse

# RIA Experimental Working Groups

- Workshops on various aspects of the RIA facility have been held
- **RIA Technical workshop Advisory Committee** has been formed (Nolen, Thoennesen, Co-Chairs)

Following the workshops, groups with specific interests have been formed with the purpose of following in some detail a certain aspect of the RIA facility.

**ARIA** – Astrophysics at RIA: <http://www.ariaweb.org>

**DARITI** – Decay Spectroscopy at RIA: <http://groups.nscl.msu.edu/dariti/>

**GRETINA/GRETA** Users Group: <http://radware.phy.ornl.gov/greta/join.html>

**RIA Separator** Working Group: <http://mare.tamu.edu/ria/separators.html>

**RIA Spectrograph** Working Group: <http://www.nscl.msu.edu/~zegers/RIA/spectrometer.html>

**SHIRIA** – Studies of Heavy-Ion Reactions at RIA: <http://nuchem.chem.rochester.edu/SHIRIA/>

# The RIA Theory Group (RIATG)

<http://www.orau.org/ria/RIATG/>

## RIA Theory Group

Rare Isotope Accelerator Project (RIA)

- News
- Job Postings
- RIATG Meetings
- Conferences, Workshops, and Programs
- Executive Committee
- Charter
- Documents
- Join the RIATG
- Links
- Popular Talks
- Home
- RIA Main Web Site

Welcome to the [RIA Theory Group](#) (RIATG) site.

The RIATG is a group of over 140 scientists that was formed following the 2002 Fall DNP meeting held in East Lansing. The primary purpose of RIATWG is to organize the nuclear theory community interested in RIA physics to:

- Identify and prioritize the most important physics questions to be addressed at RIA
- Act as a forum and a voice for the nuclear structure and astrophysics theory community to most effectively enhance the nuclear theory effort in the US. This follows from the charge in the long-range plan to "Significantly increase funding for nuclear theory, which is essential for the developing potential of the scientific program".
- Partner with the RIA Users Group and the RIA steering committee to promote RIA

[RIA Theory Bluebook: A Road Map](#)  
A report from the RIA Theory Group, September 2005

### Breaking News

[Jobs page](#) updated 5-8-06

**JUSTIPEN:**  
**The Japan-U.S. Theory Institute for Physics with Exotic Nuclei**

International Conference on Nucleus-Nucleus Collisions 2006 - Rio de Janeiro, Brazil [...more](#)

# RIATG (cont.)

Early 2003 Idea conceived  
November 2003 First meeting, Tucson  
March 2004 Charter approved  
June 2004 First executive committee formed  
October 2004 Second meeting, Chicago  
**September 2005 Blue Book finalized**  
September 2005 Third meeting, Detroit  
**July 2006 JUSTIPEN launched**  
**Nov 2006, UNDEF SciDAC-2 funded (DOE and NNSA)**

RIA Theory Bluebook: A Road Map

A Report from the RIA Theory Group

September 2005



## JUSTIPEN

Japan U.S. Theory Institute for Physics with Exotic Nuclei

[JUSTIPEN  
Policies](#)

[Governing Board](#)

[Conference  
Postings](#)

[Job Postings](#)

[List of Visitors](#)

**Purpose:**

Deliver an international venue for research on the physics of nuclei during an era of experimental investigations on rare isotopes.

**Location:**

RIKEN, at the new RIB Factory

**US Participation:**

Provide travel and local support for U.S. visits to the Center



## The Science of the Rare Isotope Accelerator (RIA)



A Brochure from the RIA Users Community

## Questions that Drive the Field (as in the RIA Brochure)

- How do protons and neutrons make stable nuclei and rare isotopes?
- What is the origin of simple patterns in complex nuclei?
- What is the equation of state of matter made of nucleons?
- What are the heaviest nuclei that can exist?
  
- When and how did the elements from iron to uranium originate?
- How do stars explode?
- What is the nature of neutron star matter?
  
- Why is there more matter than antimatter?
- What are the weak interactions among hadrons, and how are they affected by the nucleus?
  
- How can our knowledge of nuclei and our ability to produce them benefit the humankind?
  - Life Sciences
  - Material Sciences
  - Nuclear Energy
  - Security

Physics  
of nuclei

Nuclear  
astrophysics

Fundamental  
interactions

Applications  
of nuclei

## FOCUS! FOCUS! FOCUS!

- Community speaks with one voice
- Collaborations and interactions stimulated
- Crucial for nurturing the RNB community
- Reliable partner
- Helps promoting the field on various levels

Just makes sense...

Backup Stuff

U.S. Department of Energy



Office of Science

## FY 2007-2011 Nuclear Physics Program Impacts / Implications



### **Operate and proceed with upgrades of RHIC and CEBAF to achieve their scientific goals**

- Operate the facilities and support the research community to extract the science
- Proceed with 12 GeV CEBAF Upgrade and RHIC accelerator/detector upgrades (RHIC II)
- Participate in the heavy ion program at LHC/CERN

### **Implement a plan to remain among the leaders in nuclear structure/astrophysics**

- Operate the facilities and support the research community to extract the science
- Invest at domestic and foreign facilities to allow U.S. researchers to do forefront science
  - (ATLAS and HRIBF accelerator/detector upgrades)
  - (Experimental equipment at facilities with forefront exotic beam capabilities)
- Support R&D to start construction of a U.S. exotic beam facility at end of this 5-year period.

### **Support and implement the capabilities to address high priority scientific opportunities**

- New nuclear structures and nuclear behaviors with GRETINA
- Fundamental neutron properties (tests of Standard Model) at the FNPB at SNS
- Neutrino science with a neutrinoless Double Beta Decay experiment
- Quantum ChromoDynamics (QCD) with lattice gauge calculations
- Next-generation nuclear physics research capabilities with accelerator R&D
- Nuclear data measurements and code development for next generation nuclear reactors

U.S. Department of Energy



Office of Science

## SC NP Strategic Plan Science Campaigns/Tools



### STRATEGIC PLAN:

A productive U.S. program that maintains a leadership role in nuclear physics (NSAC) that provides the knowledge/technology/trained manpower needed for Nation's nuclear-related activities

### SCIENCE CAMPAIGNS:

What are the properties/reactions of atomic nuclei and the micro-physics of the Universe (applications/astrophysics)

How do quarks/gluons combine to form nucleons? (strong force i confinementi)

[ Lattice Gauge QCD Calculations

How does high-energy dense nuclear matter behave? (cosmology/new states of matter)

How to test the i Standard Model of Particle Physics? (building block/forces of nature)

### Major Tools Today

ATLAS, HRIBF  
Univ. accelerators  
Specialized detectors

CEBAF  
RHIC (polarized proton)  
Other Facilities

Computers at BNL and TJNAF

RHIC

SNO, KamLAND

LANSCE/LANL expts

### Science Opportunities

Exotic Beam Facility

12 GeV Upgrade (eLHC)  
(eRHIC)

Other Facilities

LQCD Initiative]

RHIC II  
LHC participation

Double Beta Decay Exp

SNS/ORNL expts (nEDM)

**Exotic Beam Facility**