

**Nuclear Physics**  
**Present status & Future**  
**perspective**

**Division of Nuclear Physics,**  
**Korean Physical Society**

**B. G. Yu (KAU)**

<http://home.icpr.or.kr/~kpsnuclear/>



# Contents

- Status of Nuclear Physics Division
- Research areas
- KoRIA
- Activities
  - Education/Training activities
  - Exchange Programs

# Status of Members: ~ 250 members

• Regular Members and Fellows	~ 170
• Student Members	~ 70
• Steering Committee Members	12
1. Korea-Japan Exchange Program Committee	3
2. Nuclear Physics School Committee	3
3. Scientific Program Committee	8

# Research Groups

<b>Low Energy &amp; Applications</b>	<p>~ 150 members</p> <p>Theory, Nuclear Structure &amp; Reactions, Nuclear-astrophysics, Applications</p> <p>(Detector Development, Data, Imaging)</p>
<b>High Energy Heavy Ions</b>	<p>~ 50 members</p> <p>Theory, Exp. RHIC, GSI, CERN</p>
<b>Hadron Physics</b>	<p>~ 50 members</p> <p>Theory, Exp. JLab, J-PARC</p>

# Nuclear Physics Research

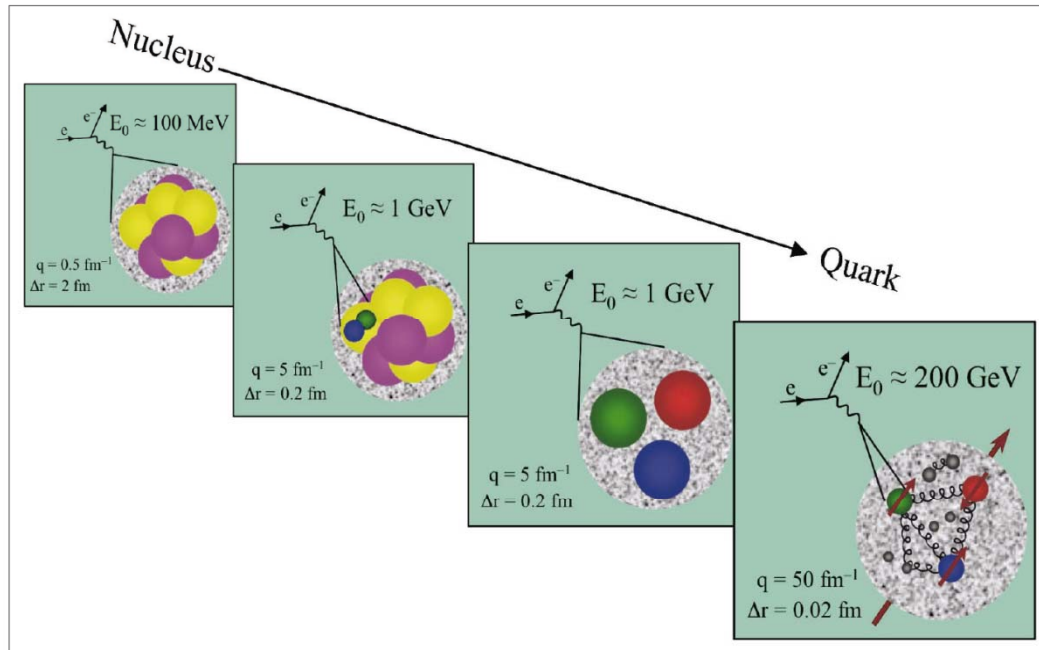


Figure 2. Different projectile energies test different properties of the nucleon structure.

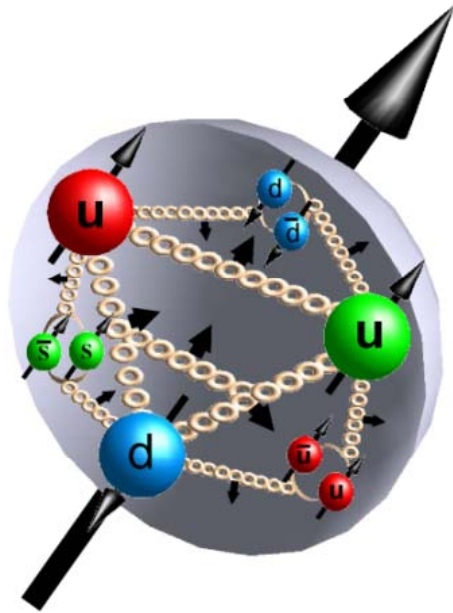
Hadron Physics (HaPhy)

Nuclear structure &  
reaction

Nuclear Astro physics (LENS)  
Heavy Ion Collision (HIM)

Application (User group)

# HaPhy



## Happy HaPhy!

**The Korean Hadron/Few-Body Physics Working Group**

**Home**

- Who We Are
- Announcement
- Bulletins

393

days since  
The first hadron physics meeting

Related Sites


### 2012: Hadron Physics from Nuclei to Stellar Phenomena

### 2011: From MeV to TeV



2012년의 첫 HaPhy 모임인 HaPhy2012-04가 Theories for J-PARC Physics 라는 주제로 4월 14일 (토) 포항의 아시아 태평양 이론물리센터에서 5분의 국외 연사와 2 분의 국내연사를 모시고 모두 49 분이 참석한 가운데 열렸습니다. 특히 이번 행사는 APCTP-WCU(Hanyang) Focus Program, Heavy Ion Meeting과 공동으로 열려 많은 분들이 참석하여 유익한 행사가 되었습니다. 이날 행사의 프로그램은 다음과 같습니다.


주제: Theories for J-PARC Physics  
일시: 2012년 4월 14일(토)  
장소: APCTP Headquarters, Pohang  
후원: APCTP

# Him

## Heavy Ion Meeting

<http://him.phys.pusan.ac.kr/~him>

contact us : tdw1978@pusan.ac.kr / tel) 051-513-2594 / fax) 051-512-2594

sponsored by 



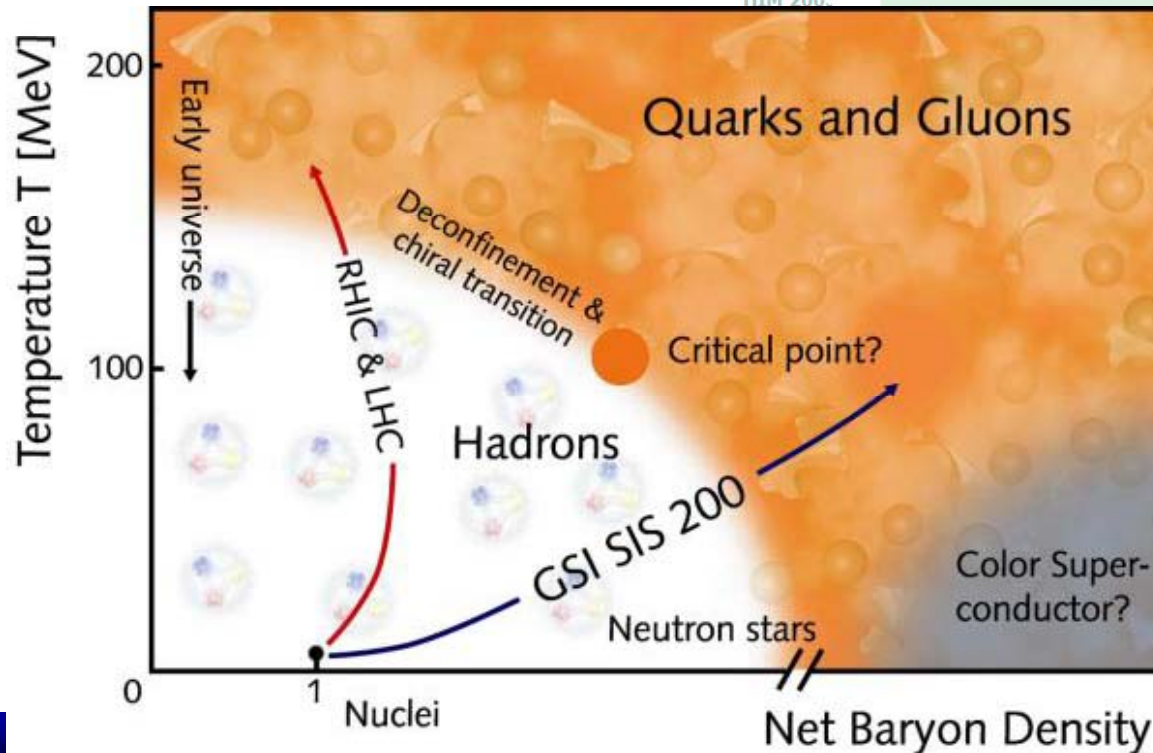
HIM 소개

HIM 모듬

- HIM 2010
- HIM 2009
- HIM 2008
- HIM 2007
- HIM 2006
- HIM 2005

### Heavy Ion Meeting 2012-04

- Date : April 13 (Fri.), 2012.
- Location : APCTP Headquarters, Pohang, Korea, Korea
- Title : Nuclear Equation of State and Symmetry Energy
- Organizing Committee :
  - Byungsik Hong (Korea University)
  - Su Hyoung Lee (Yonsei University)



of State and Symmetry Energy"의 주제, APCTP-WCU 포커스 프로그램 stars in QCD and hQCD) 및 하드론물리(HaPhy) 그룹과 공동으로 개최함

이용한 중이온 가속기 실험이 우리나라를 비롯한 세계 각국에서 건설 핵의 상태방정식 및 대칭에너지 관련 연구가 활성화되고 있습니다. 따라서 포커스 프로그램 초청 연사 중 관련 분야의 전문가인 Hermann Wolter, tiz 교수님을 초청하여 대칭에너지 이론과 실험에 대한 논의를 심도

수님이 한국형 중이온 가속기에서의 대칭에너지 실험계획 발표하 D 할 규격에 의한 대칭에너지 연구결과를 발표할 예정입니다.

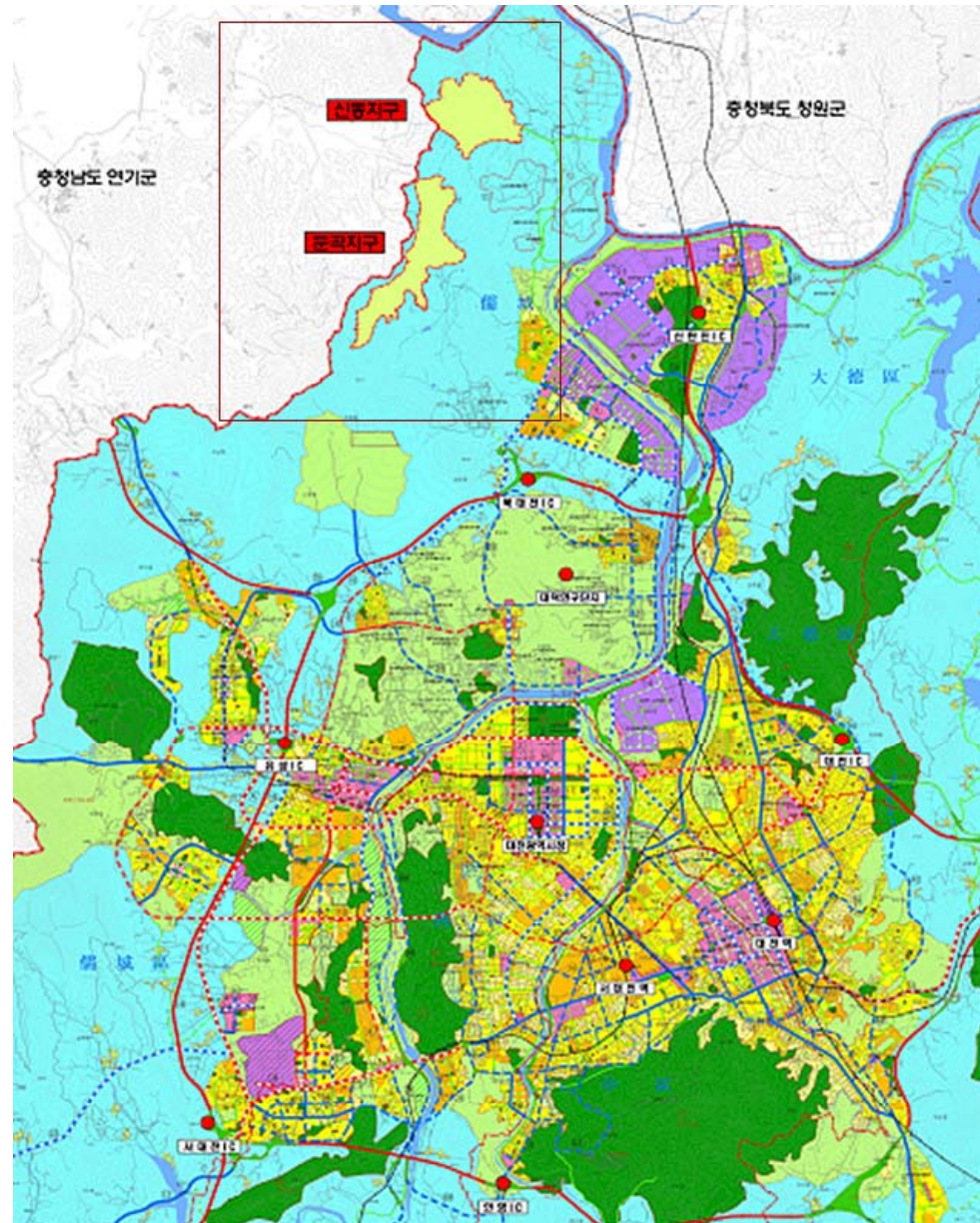
# KoRIA : Korea Rare Isotope Accelerator



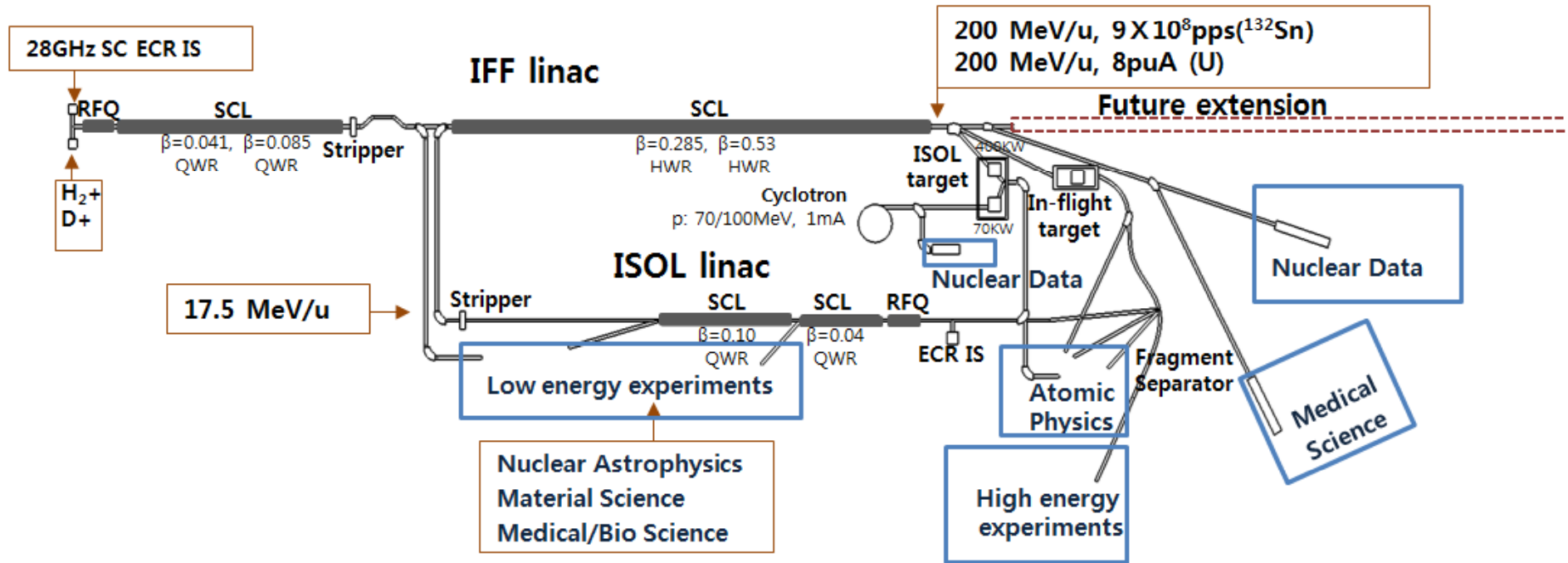




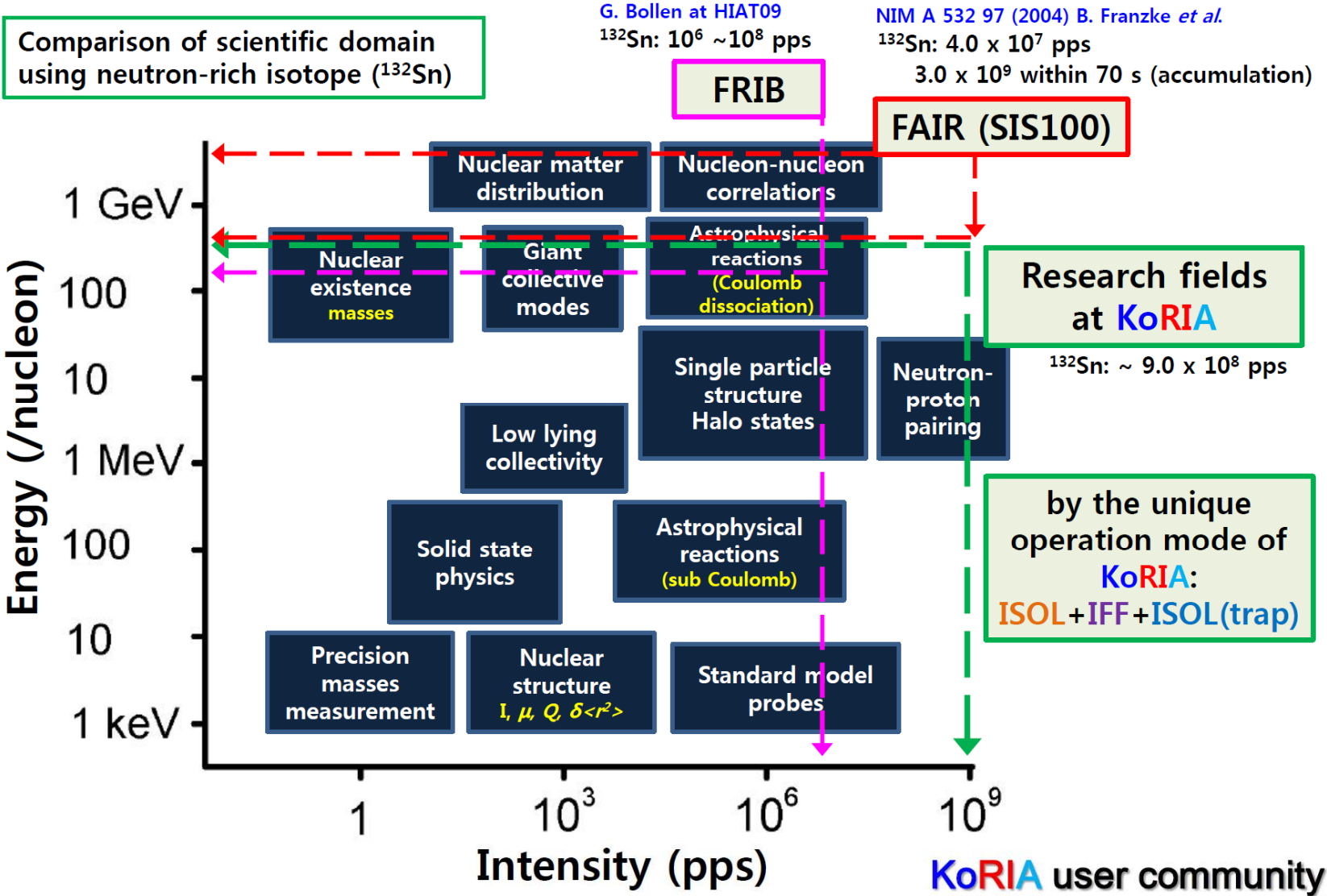
# Location



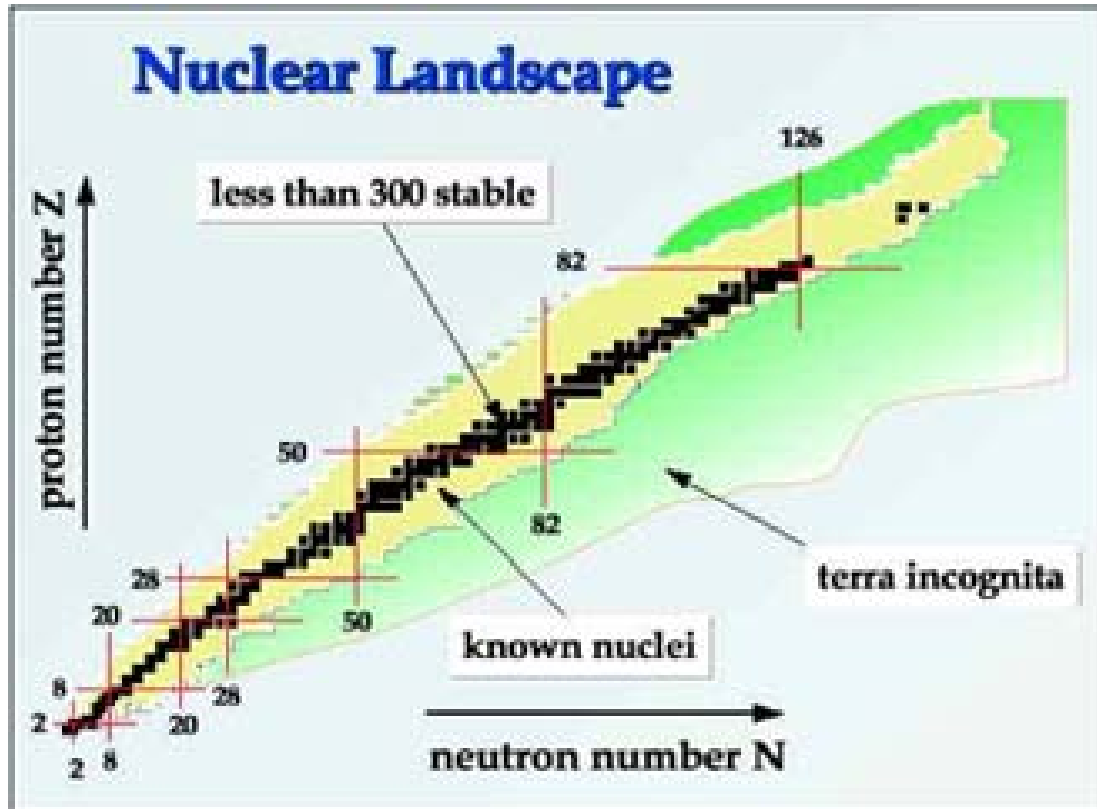
# Layout



# Performance



# Nuclear chart



Issues in nuclei from light to heavy elements

- Explore the region "terra incognita"
- Symmetries & phase transition, etc
- Toward a unified description

# Nuclear Physics

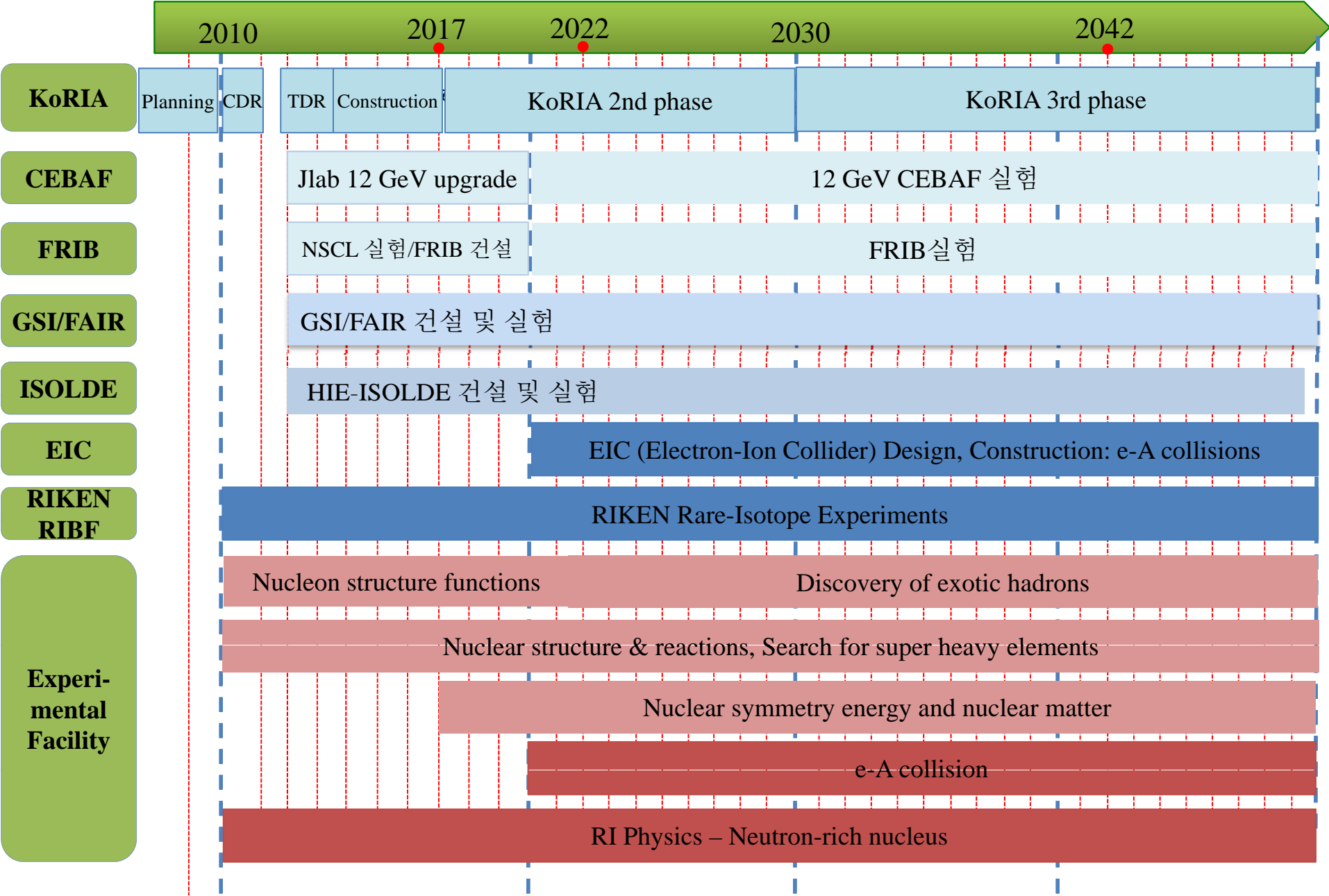
## ● Nuclear Structure and Reactions

- Ab initio method (EFT) : light nuclei
- Shell structure : between EFT & EDF
- Nucl. Energy density functional method (EDF) : heavy nuclei
- Collective mode

## ● Nuclear Astrophysics

- From nuclei to stars at specific conditions : neutron stars, supernova, etc
- Nucleosynthesis : HCN0 cycle, r-process, rp-process

# Nuclear Physics & Hadron Physics



# Workshops

1. 2012. 10.  
KPS fall conf.  
Pioneering session “New trends in nuclear physics”
2. 2012. 10.  
APCTP, Pohang, Korea  
Joint workshop with BLPT-JINR
3. 2012. 11.  
Pusan Nat'l Univ.  
Heavy Ion physics conf.



**Thank you**

