


History of ANPhA

Shoji Nagamiya
(RIKEN, KEK)

- 
- To strengthen “**Collaboration**” among the Asian communities in nuclear research through the promotion of basic nuclear physics and its applications,
 - To promote “**Education**” in the Asian nuclear science communities through mutual exchange and coordination of resources,
 - To encourage “**Coordination**” among the Asian nuclear scientists for active utilization of existing research facilities, and
 - To discuss **future planning of the nuclear science facilities and instrumentation** among member countries.

- OECD Mega Science Forum (around 2000): Top down vs. IUPAP: Bottom up. In C12, WG9 was created when I was chair. The chair of WG9 was Tony Thomas.
- The first step was taken during the meetings of WG9 and C12 in May 2008 held at CERN, where Shoji Nagamiya (KEK/J-PARC, Japan), Dong-Pil Min (SNU, Korea), Hideyuki Sakai (U. Tokyo, Japan), and Wenqing Shen (NSFC, China) proposed the necessity of Asian collaboration.
- World class facilities, such as RIBF at RIKEN and J-PARC at Tokai in Japan, a new initiative on a heavy ion accelerator in Korea, Heavy Ion Research Facility in Lanzhou (HIRFL) and BRIF(II) at CIAE in China, etc. are in operation or being planned.

- The first preparation meeting was held in Tokyo, Japan in October 4, 2008 followed by the second meeting in Seoul, Korea in February 21, 2009. Named ANPhA.



- On July 17-18, 2009, the third preparation meeting together with the Inauguration Ceremony took place in the Ying Jie Conference Center of Peking Univ.



Chair: newly elected chair person (H. Sakai).

Participants: all board members

Tentative agenda

- Announcement of the ANPhA establishment to nuclear physics communities in Asian countries (or in the world). (Also, discussed on how and when?).
- Invitation of new member countries and regions.
- Preparation of document for existing research facilities and computing resources in member countries. (subcommittee members, target date, procedure, contents, etc.).
- Selection (request) of ANPhA supported symposium, workshop for 2009-2010.



- Selection (request) of ANPhA support schools for young physicists for 2009-2010.
- Confirm (establish) the network connection for information transfer among member countries.
- How to be involved in the 11th Asia Pacific Physics Conference (APPC) 2010 in China?
- Discussion on the long-range plan of ANPhA.
- Determination of the Second ANPhA Meeting, when and where?
- **Adoption of Bylaws**

Objectives:

- The objective of ANPhA is to strengthen "Collaboration" among Asian nuclear research scientists through the promotion of nuclear physics and its transdisciplinary use and applications.
- The objective of ANPhA is also to promote "Education" in Asian nuclear science through mutual exchange and coordination.
- It also aims at "Coordination" among Asian nuclear scientists by actively utilizing existing research facilities.
- Furthermore, at a later stage, it will help to discuss future planning of nuclear science facilities and instrumentation in Asia.

Membership:

- The Members of ANPhA must be representing organizations in nuclear sciences research in Asian or Oceanic countries. In each country the representing organization could be different, while the body must be "certain" representing organization which each country can authorize.
- The number of the board members from one country or region must be less than five.
- The representative organizations in some special regions, such as Taiwan and Hong Kong, may also become members of ANPhA, based on mutual agreement related to the region definition.

Board:

- The ANPhA Board is installed with an appropriate numbers of Board members. Initial Board members are Japan (4), China (4) and Korea (3). **This number can be added later by the approval of the Board meeting.**
- The Board may select chair, vice chair(s) and secretary. The term of the chair, vice chair(s) and secretary is two years.
- The Board meetings shall be held on a regular basis, at least annually, at which all business items shall be discussed.

ANPhA Office:

- The ANPhA Office shall be located at the RIKEN Nishina Center. The Office is not necessarily permanent and can be changed later.

Research Facility Usage of Other Countries:

- **In order to promote collaboration among Asian countries, the ANPhA will create documents for easier access to research facilities. Examples of these are 1) available experimental facilities including major accelerators, 2) major computing resources, etc.**

Coordination:

- Each country and region must define its own coordinator among the Board members.
- The ANPhA must have its own homepage. Each country and region must define an appropriate network and other useful information.
- The ANPhA supports organizing seminars and workshops, etc. for information exchange among the membership countries.

Education:

- The ANPhA can organize “Schools” for students. The ANPhA can be instrumental for University- Institution cooperation and exchange programs.

Future Planning:

- Eventually, at a later stage of ANPhA, it is useful for ANPhA to create a document for future planning of accelerators and instrumentation in Asian countries or regions.

■ ANPhA Ceremony Invited distinguished guests

- Wenqing Shen, Academician, Deputy Director of NSFC
- Wenlong Zhan, Academician, Deputy Director of CAS
- Huanqiao Zhang, Academician, Chair of NPSC
- Jiaer Chen, Academician, Former President of PKU
- Guangda Zhao, Academician, Director of the Scientific Committee of SP of PKU

■ Special guests

- Boqiang Ma, Professor., Deputy Dean of SP of PKU
- Yuxin Liu, Professor, Deputy Dean of SP of PKU
- Furong Xu, Professor, Director of the DTP of the SP-PKU

■ ANPhA 1st Board meeting members

- Shoji Nagamiya, Japan
- Tohru Motobayashi, Japan
- Takaharu Otsuka, Japan
- Hideyuki Sakai, Japan
- Dong-Phil Min, Korea (absent)
- Seung-Woo Hong, Korea
- Wooyoung Kim, Korea
- Dao Tien Khoa, Vietnam
- Weiping Liu, China
- Guoqing Xiao, China
- Represented by Hushan Xu for Yugang Ma, China
- Yanlin Ye, China

Ceremony for the Establishment of ANPhA, Beijing, 2009
亚洲核物理联合会 (ANPhA) 成立仪式, 北京, 2009



China, Korea, Japan, Vietnam, India, Australia, Taiwan

The First

ANPhA

Asian Nuclear Physics Association

SYMPOSIUM

on Nuclear Physics Facilities

in ASIA

Ceremony for the Establishment of ANPhA, Beijing, 2009
亚洲核物理联合会 (ANPhA) 成立仪式, 北京, 2009



on **2010, Jan, 18(Mon), 19(Tue)** at **J-PARC (Tokai, Japan)**

Program

◆ Introduction of Asian Facilities

- Japanese Facilities
- Korean Facilities
- Chinese Facilities
- Indian Facilities
- Other Countries' Facilities

◆ Toward International Collaboration

◆ J-PARC Tour

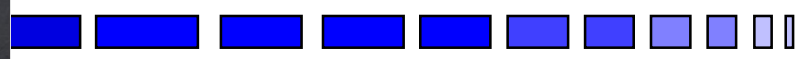
Advisory Board

Hideyuki Sakai (U.Tokyo, Japan, Chair)
 Tohru Motobayashi (RIKEN, Japan, Secretary)
 Takaharu Otsuka (CNS, U.Tokyo, Japan)
 Dong-Pil Min (SNU, Korea, Vice Chair)
 Seung-Woo Hong (Sungkyunkwan Univ., Korea)
 Wooyoung Kim (Kyungbuk National Univ., Korea)
 Dao Tien Khoa (VAEC, Vietnam)
 Yanlin Ye (PKU, China, Vice Chair)
 Weiping Liu (CIAE, China)
 Guoqing Xiao (IMP, China)
 Yugang Ma (SINAP, CAS, China)

Local Committee

Shoji Nagamiya (J-PARC)
 Ken-Ichi Imai (Kyoto/JAEA)
 Susumu Sato (JAEA)
 Hiroyuki Sako (JAEA)
 Toshiaki Maruyama (JAEA)
 Kazuhiro Tanaka (KEK)
 Shin'ya Sawada (KEK)

2nd ANPhA (Japan)



- 1st ANPhA Symposium, India, Australia, Taiwan joined from this mtg.
- # of Participants were 56 (Foreign 27 (China 10, Korea 8, etc.), Japan 29)
- Financial Support from Inoue Foundation.
- One-day ANPhA mtg + two day symposium.

Jan 17 (Sun) [The second Board Meeting]

10:30	11:00	Registration
11:00	17:00	Board Meeting (Lunch is prepared.)

< The First ANPhA Symposium

Jan 18 (Mon) Morning [chair : Hideyuki SAKAI / Yanlin YE (before/after break)]

8:30	8:50	Registration
8:50	9:00	Welcome
9:00	9:30	RI Beam Factory
9:30	10:00	J-PARC Facility
10:00	10:20	Message from Nuclear Theory in Japan -Nuclear Data and Summer School-
--- Photograph & Coffee Break ---		
10:50	11:10	Facilities in RCNP
11:10	11:30	Tohoku University Facility
11:30	12:00	Other Universities
12:00	12:20	Computing Facilities in Japan

Jan18 (Mon) Afternoon [chair : Bikash SINHA / Anthony THOMAS (before/after break)]

13:30	14:00	The HIRFL-CSR facility in Lanzhou and the related future plan
14:00	14:30	The on-going BRIEF facility in Beijing
14:30	15:00	SSRF-SLEGS prototype and future plan
15:00	15:20	New Heavy Ion Accelerator Project in Korea
--- Coffee Break ---		
15:50	16:10	Reno and Related Physics
16:10	16:30	The Proton Engineering Frontier Project
16:30	17:00	Cyclotron Radio Active Ion Beam Facility and beyond
17:00	17:45	Facilities in Mumbai and Delhi
--- Break ---		
--- Reception ---		
18:00	20:30	with invitation of Mayor of Tokai-mura, Mr. Tatsuya MURAKAMI (at "Communication Room" in the symposium venue)

Jan 19 (Tue) Morning [chair : Kui Young Kim (before break)]

9:00	9:30	Situation in Vietnam
9:30	9:50	Status of the ALICE at LHC
9:50	10:10	Situation in Taiwan
10:10	10:40	Situation in Australia
--- Coffee Break ---		
11:10	12:30	Panel Discussions for the Future
		(Moderator) Shoji NAGAMIYA Hideyuki SAKAI (Chair, Japan) Yanlin YE (China) Woo Yong KIM (Korea) Tohru MOTOBAYASHI (Secretary, Japan)
		(Panelists) Bikash SINHA (India) Mai Thanh VU (Vietnam) Jiunn-Wei CHEN (Taiwan) Anthony THOMAS (Australia)

Jan 19 (Tue) Afternoon

14:00	16:00	J-PARC Tour
		Neutrino Experimental Facility [14:00-14:20] SEKIGUCHI
		Material & Life Sciences Facility [14:25-14:55] NAKATANI
		Hadron Experimental Facility [15:00-15:40] guided by Shin'ya SAWADA
		Central Control Room [15:45-16:00] guided by Noboru YAMAMOTO

Program



Participants of the Symposium

The First ANPhA Symposium
Jan. 2010, Tokai JAPAN






2nd ANPhA Symposium
KoRIA
October 1-2, 2010
Sungkyunkwan University, Seoul, KOREA

TOPICS

- Korea Rare Isotope Accelerator (KoRIA)
 - International Rare isotope Beam Facilities
 - Science and Technology with ISOL Facility
 - Science and Technology with In-Flight Fragmentation Facility
 - Nuclear Physics with KoRIA
 - Technical Aspects of KoRIA
 - International Collaboration

INVITED SPEAKERS

Wolfgang Mittig (FRIB, USA)
Yorick Blumenfeld (CERN, ISOLDE, EURISOL)
Tohru Motobayashi (RIBF)
Marek Lewitowicz (SPIRAL2)
Alberto Andrichetto (LNL, SPES)
Yoshishige Yamazaki (Linac, Synchrotron, Cyclotron, RIB)
Weiping Liu (BRIF, CIAE)
Dan Xie (ECR Ion Source)
Hironori Kuboki (RIBF)
Toshiyuki Kubo (RIBF)
Toshiyuki Kubo (RIBF)
Hiroari Miyatake (TRIAC)
Seung-Woo Hong (KoRIA)
Yong Kyun Kim (KoRIA)
Young Kwan Kwon (KRS, KoRIA)
Kyung Sei Lee (LAMPS, KoRIA)
Se-Hwan Park (KoRIA)
Dai Hyuk Yu (KoRIA)
Young-Ouk Lee (KoRIA)
Hide Sakai (KoRIA)

INTERNATIONAL ADVISORY COMMITTEE

John M. Gates (Texas A&M University)
Seung-Kook Ko (Sungkyunkwan University)
Sung-Woo Hong (Sungkyunkwan University)
Dan Tanihara (National Institute of Advanced Industrial Science & Technology)
Weiping Liu (CIAE)
Wolfgang Mittig (CERN)
Yoshishige Yamazaki (RIKEN)
Marek Lewitowicz (SPIRAL2)
Hide Sakai (RIBF)
Toshiyuki Kubo (RIBF)
Toshiyuki Kubo (RIBF)
Hiroari Miyatake (TRIAC)
Seung-Woo Hong (KoRIA)
Yong Kyun Kim (KoRIA)
Young Kwan Kwon (KRS)
Kyung Sei Lee (LAMPS)
Se-Hwan Park (KoRIA)
Dai Hyuk Yu (KoRIA)
Young-Ouk Lee (KoRIA)
Hide Sakai (KoRIA)

LOCAL ORGANIZING COMMITTEE

Jong Seon Cho (Sungkyunkwan University)
Seung-Kook Ko (Sungkyunkwan University)
Sung-Woo Hong (Sungkyunkwan University)
Yong Sub Cho (Sungkyunkwan University)
Tae-Sun Park (Sungkyunkwan University)
Jong Won Kim (Sungkyunkwan University)
Hide Sakai (Sungkyunkwan University)

CONTACT

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25 talks + 2 discussions

Program *

First Day Oct 1 (9:15 ~ 18:40)

- 9:15 ~ 9:20 Dong-Pil Min Opening
- 9:20 ~ 9:50 Wolfgang Mittig FRIB and KoRIA
- 9:50 ~ 10:20 Yorick Blumenfeld CERN ISOLDE and EURISOL
- 10:20 ~ 10:50 Tohru Motobayashi Nuclear Physics at RIBF
- 11:10 ~ 11:40 Marek Lewitowicz Low energy physics & related facility in SPIRAL2
- 11:40 ~ 12:10 Alberto Andrichetto The production target for RIB's facility: R&D activities at LNL for the SPES project
- 12:10 ~ 12:30 Yoshishige Yamazaki Linac, Synchrotron, and Cyclotron for RIB
- 1:30 ~ 1:50 Weiping Liu Progress of on-going (BRIF) and proposed (CARIF) RIB Projects in CIAE
- 1:50 ~ 2:10 Dan Xie A Brief Review of the Development of ECR Ion Source
- 2:10 ~ 2:30 Hironori Kuboki Stripper in RIBF
- 2:30 ~ 2:50 Toshiyuki Kubo Fragment Separator in RIBF
- 2:50 ~ 3:10 Hiroari Miyatake A New Approach for Next-TRIAC
- 3:30 ~ 3:45 Seung-Woo Hong Overview of KoRIA
- 3:45 ~ 4:10 Yong Kyun Kim Planning of Scientific Program at KoRIA
- 4:10 ~ 4:35 Young Kwan Kwon KRS: KoRIA Recoil Spectrometer
- 4:35 ~ 5:00 Kyung Sei Lee Large-Acceptance Multipurpose Spectrometer (LAMPS) for Symmetry-Energy Researches in Korea
- 5:00 ~ 5:25 Se-Hwan Park Material Science Research at KoRIA
- 5:25 ~ 5:45 Dai Hyuk Yu Atomic Physics for RI Research
- 5:45 ~ 6:05 Young-Ouk Lee Nuclear Data at KoRIA
- 6:05 ~ 6:30 Hide Sakai Discussion

Second Day: Oct 2. (9:00 ~ 12:10)

- 9:00 ~ 9:30 Seung Kook Ko Driver Linac
- 9:30 ~ 9:50 Jong Seo Chai Cyclotron
- 9:50 ~ 10:10 B. H. Oh Ion Source
- 10:10 ~ 10:30 Yong Sub Cho RFQ
- 10:50 ~ 11:10 Tae-Sun Park ISOL Linac
- 11:10 ~ 11:30 Jong Won Kim Fragment Separator
- 11:30 ~ 12:00 Jerry Nolen Discussion
- 12:00 ~ 12:10 Hide Sakai Closing

Member Countries/Regions

● **1st board meeting (China)**
18th July 2009 @Peking University



China:~1,000



Japan:~1,000



Korea:~200



Vietnam:~50

● **2nd board meeting (Japan)**
17th Jan. 2010 @J-PARC (Tokai)



Australia~50



India:~300



Taiwan:~50

● **3rd board meeting (Korea)**
2nd Oct. 2010 @SKKU (Seoul)



Mongolia:~30

8 member countries/region

Logo



Homepage

<http://ribf.riken.jp/anpha/index.html>

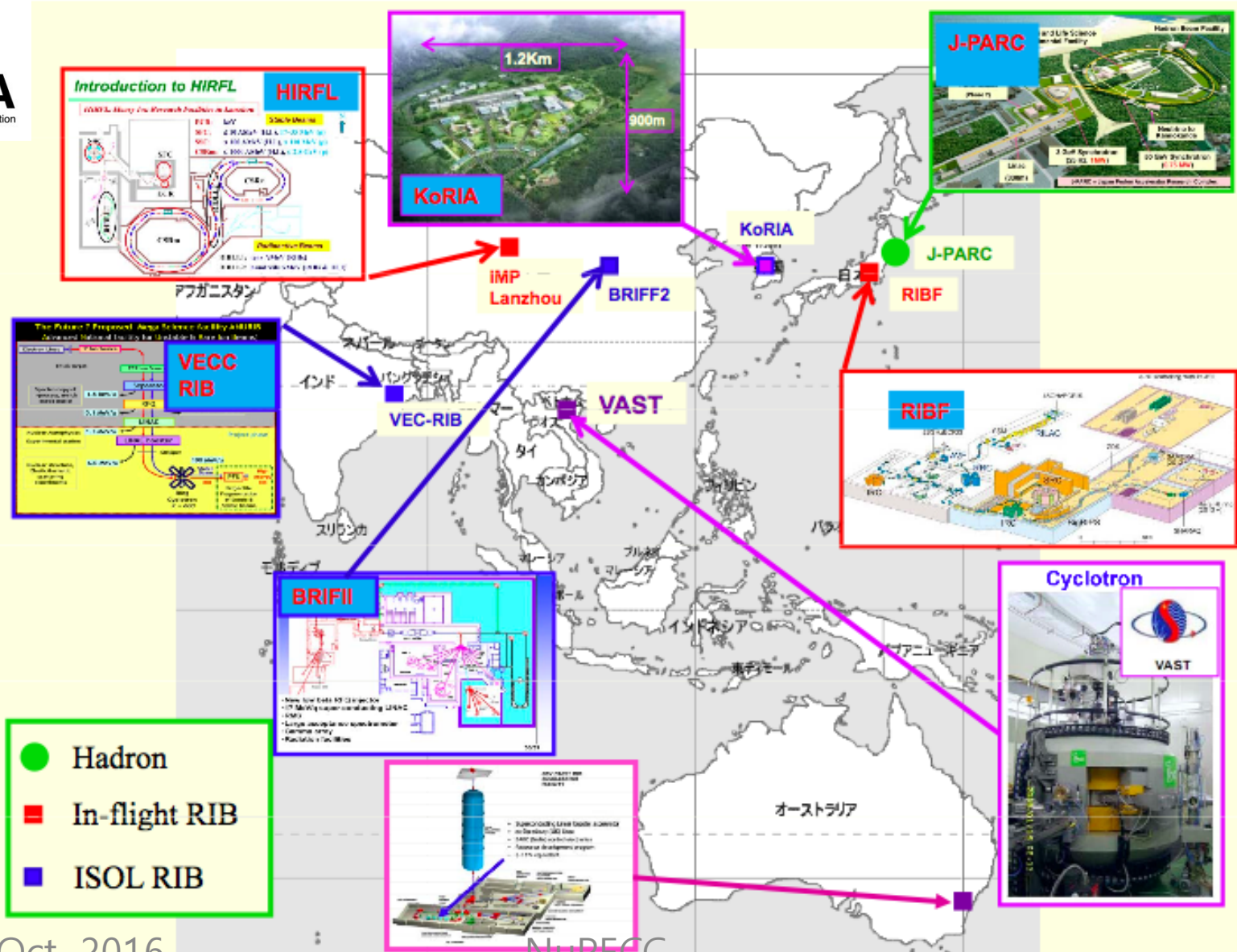
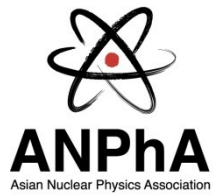
History of ANPhA Meetings

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- 11th, Nov 24, 2016 **Sendai**, Japan 9th ANPhA Symposium
 - 10th, Oct. 24, 2015 **Gyeongju**, Korea 8th ANPhA Symposium
 - 9th, Nov. 7, 2014 **Ho Chi Minh**, Vietnam 7th ANPhA Symposium
 - 8th, Feb. 19, 2014 **Kolkata**, India 6th ANPhA Symposium
 - 7th, Apr. 27, 2013 **Taipei**, Taiwan 5th ANPhA Symposium
 - 6th, Aug. 4, 2012 **Adelaide**, Australia 4th ANPhA Symposium
 - 5th, Nov. 27, 2011 **Hanoi**, Vietnam
 - 4th, Apr. 30, 2011 **Lanzhou**, China 3rd ANPhA Symposium
 - 3rd, Oct. 2, 2010 **Seoul**, Korea 2nd ANPhA Symposium
 - 2nd, Jan. 17, 2010 **Tokai**, Japan 1st ANPhA Symposium
 - 1st, Jul. 18, 2009 **Beijing**, China

- Preparation of document for existing research facilities and computing resources in member countries in Asia Pacific.
 - Initiated by Kazuhiro Tanaka (J-PARC)
- Much more ANPhA initiated conferences and schools.
- Future planning of the nuclear science facilities and instrumentations among member countries.
 - Nothing started.
 - We must consider it like NuPECC and ESFRI.
- Budget, Influence to Individual Government, Constant Secretary, etc. + Division of AAPPS.
 - Some discussions in the future.

- Many conferences and schools in so far
 - About 15 Conferences and 15 Schools every year, according to the Web page of ANPhA.
 - Need more commitment to each conference and school.
- More Schools or Conferences between two ANPhA countries
 - Proposal by Dinesh Srivastava (Exchange and Lecture Tour)
 - Joint Session between physical societies
 -

We must encourage more
by the ANPhA initiated
conferences and schools



Oct. 2016

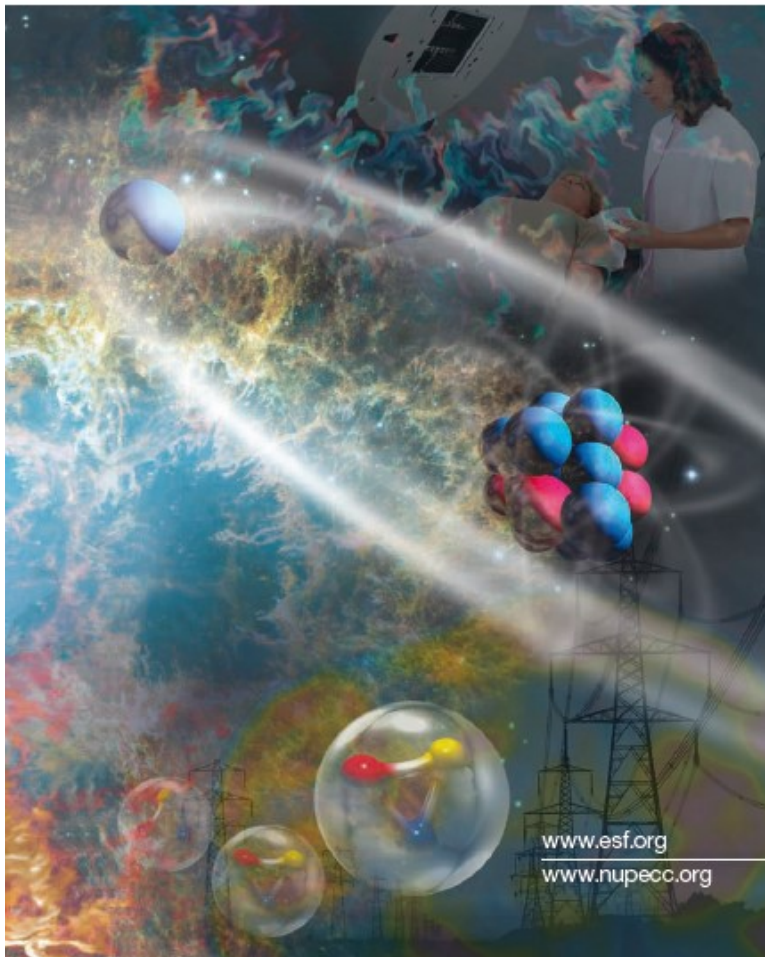
NuPECC

NuPECC Long Range Plan 2010

EUROPEAN SCIENCE FOUNDATION
SETTING SCIENCE AGENDAS FOR EUROPE

FORWARD LOOK

Perspectives of Nuclear Physics in Europe
NuPECC Long Range Plan 2010



www.esf.org
www.nupecc.org



Current Nuclear Research Facilities in Europe.

■ Examples of NuPECC Long Range Plan 2010 (excerpts)

2.1 Recommendations

We wish to issue the following recommendations of how best to develop the field of Nuclear Physics in Europe in the next decade and beyond.

ESFRI Facilities

Complete in a timely fashion the construction of the Nuclear Physics facilities on the ESFRI list of large-scale research infrastructure projects in Europe:

- FAIR at the GSI site in Darmstadt, including its four pillars, the FANDA experiment using antiprotons to study the structure and spectroscopy of strongly interacting particles (hadrons), the NUSTAR radioactive beam facility to produce nuclei far from stability and investigate their structure, the CBM experiment to measure the properties of dense baryonic matter, and the atomic, plasma, and applied physics programme APPA.
- SPIRAL2 at GANIL in Caen, including high intensity stable beams which will allow the study of unstable nuclei at the S3 spectrometer, and ISOL radioactive beams of very neutron-rich fission products and studied, for example, at the DESIR facility.

Major Upgrades

Perform major upgrades of the following large-scale Nuclear Physics facilities, which complement each other regarding their physics scope and discovery potential:

- HIE-ISOLDE at CERN, including its radioactive beam experiments.
- SPES at INFN-LNL in Legnaro, including its radioactive beam experimental set-ups.
- AGATA, the γ -ray spectrometer consisting of semi-conductor detectors that will be used at the facilities SPES, HIE-ISOLDE, SPIRAL2 and FAIR.
- The new Superconducting Linac for the provision of high-intensity stable beams at GSI to search e.g. for superheavy elements.

ALICE

- Upgrade the nuclear beams at the LHC and the ALICE detector to expand the physics reach for

its involvement in European theory initiatives.

- Strongly support advanced studies related to the experimental roadmap and the improvement of the link between nuclear theory and Quantum Chromodynamics.
- Invest in high-performance computing facilities dedicated to Nuclear Physics projects.

Existing Facilities

Fully exploit the currently existing large-scale research infrastructures (listed below in north to south order) and perform limited-size upgrades to ensure the best use of the large investments made in the past:

- The lepton beam facilities (electron/positron, muon beams) ELSA in Bonn, MAMI in Mainz, COMPASS at CERN, DAΦNE at INFN-LNF Frascati, and the hadron beam facilities COSY at FZ Jülich and at GSI to perform detailed studies of the structure of hadrons such as protons and neutrons.
- The heavy ion beam facilities JYFL Jyväskylä, KVI Groningen, GSI Darmstadt, GANIL Caen, IPN Orsay, ISOLDE at CERN, INFN-LNL Legnaro and INFN-LNS Catania to study the structure of nuclei and fundamental interactions.
- The nuclear astrophysics underground accelerator LUNA at INFN Gran Sasso, and the exploration of advanced new facilities.
- The ELENA upgrade of the Antiproton Decelerator at CERN to study antimatter.

Fully exploit smaller scale national and university Nuclear Physics laboratories across Europe dedicated to nuclear structure and astrophysics experiments, fundamental interactions and nuclear applications.

Applications and Education

Secure and further develop the Nuclear Physics skills base in view of current and future needs, in particular regarding:

- Novel developments in energy generation (nuclear fission and nuclear fusion), medicine (e.g. imaging and tumour therapy) and security.
- Development of novel sources, (micro) beams, (high power) targets and radiation detection instrumenta-

European Strategy Forum
on Research Infrastructures

ESFRI

STRATEGY REPORT ON RESEARCH INFRASTRUCTURES



ROADMAP 2016

Part 2 digital report only

ESFRI PROJECTS

ENERGY

ECCSEL
EU-SOLARIS
MYRRHA
WindScanner

ENVIRONMENT

ACTRIS
DANUBIUS-RI
EISCAT_3D
EPOS
SIOS

HEALTH & FOOD

AnaEE
EMBRIC
EMPHASIS
ERINHA
EU-OPENSREEN
Euro-Biolmaging
ISBE
MIRRI

PHYSICAL SCIENCES & ENGINEERING

CTA
EST
KM3NeT 2.0

SOCIAL & CULTURAL INNOVATION

E-RIHS

ESFRI for Physics in 2016



E-ELT	European Extremely Large Telescope	2006	2024*	Programme of ESO	1.000	40
ELI	Extreme Light Infrastructure	2006	2018*	AISBL, 2013 ERIC under preparation	850	90
EMFL	European Magnetic Field Laboratory	2008	2014	AISBL, 2015	170	20
ESRF UPGRADES	Phase I	2006	2015	Programme of ESRF	180	82
	Phase II: Extremely Brilliant Source	2016	2022*			
European Spallation Source ERIC	European Spallation Source	2006	2025*	ERIC, 2015	1.843	140
European XFEL	European X-Ray Free-Electron Laser Facility	2006	2017*	GmbH, 2009	1.490	115
FAIR	Facility for Antiproton and Ion Research	2006	2022*	GmbH, 2010	1.262	234
HL-LHC	High-Luminosity Large Hadron Collider	2016	2026*	Programme of CERN	1.370	100
ILL 20/20	Institut Max von Laue-Paul Langevin	2006	2020*	Programme of ILL	171	92
SKA	Square Kilometre Array	2006	2020*	SKAO, 2011	650	75
SPIRAL2	Système de Production d'Ions Radioactifs en Ligne de 2e génération	2006	2016	Programme of GANIL	110	5-6
CESSDA	Consortium of European Social Science Data Archives	2006	2013	Norwegian limited company. 2013	NA	1.9

Nuclear Physics

- First collect > 200 Large-Scale Plans from Literature, Social Science, Medicine, Chemistry, Physics, Biology, Energy, Environment and Earth, Informatics, etc.
- Then, select about 40 good projects by Japanese Council of Science. All were based on bottom-up.
- Then, the Government Committee selects some out of 40.
- The process started around 2010, similarly to ESFRI. Then every three years the process is reviewed. Currently, the third process is in progress.
- Accordingly, each community started to discuss more frequently and seriously.

Example for the 2010 Plan

About 10 were
Selected by Science
Council of Japan


■ 物理学・工学 (Physics and Engineering)

- Bファクトリー加速器の高度化による新しい物理法則の探求 A
- J-PARC加速器の高度化による物質の起源の解明 A
- 国際リニアコライダー(ILC)の国際研究拠点の形成 A
- 大型先端検出器による核子崩壊・ニュートリノ振動実験 A
- RIBFのRIビーム発生系の高度化による不安定核の研究 A
- 計算基礎科学ネットワーク拠点 B
- 大型低温重力波望遠鏡(LCGT)計画 A
- 30m光赤外線望遠鏡(TMT)計画 A
- 一平方キロメートル電波干渉計(SKA)計画 A
- 複合原子力科学の有効利用に向けた先導的研究の推進 A
- 高エネルギー密度科学研究推進計画 B

2 were selected
by the Government

Nuclear
Physics

最先端研究基盤事業補助金で一部(ないし全部)補填



Similar Effort of Long
Range Plan by ANPhA
must be started !!

Effort by K. Tanaka to create
the available facilities would
be a good starting point.

- Already, ANPhA started to form sessions at several Asia Pacific Physics Conference (APPC) meeting, Shanghai (China) in 2010, Makuhari (Japan) in 2013, Brisbane (Australia) in 2016 ?, as a Division of Nuclear Physics.
- Therefore, the ANPhA played practically a role of AAPPS Division. Furthermore, the ANPhA became an official AAPPS Division in 2015.
- In future however, a possibility is, for example, like Japan, in which both Nuclear Physics Committee (similar to the executive committee for ANPhA) and the Division of Physical Society of Japan (like a Division of AAPPS) are being formed by a single body of Nuclear Physics Association (of about 500 experimental + 500 theoretical in Japan).

Thank you