Asian Regional Report

Mitsuaki NOZAKI
(KEK)
When 12 GeV PS started operation at KEK in 1976, shortly after the discovery of $J/\Psi$ and $\tau$, many colliders were running in Europe and US.
When BEPC started construction at IHEP in 1984, shortly after the discovery of W/Z, many colliders were running at much higher energies.
Now, Asia is catching up, and the center of mass of HEP accelerators is moving towards Asia.
25 LS’s in Asia Oceania
(18 in North America, 25 in Europe)
ref: http://www.lightsources.org/
Asia is rising in accelerator science

• National/regional facilities (HEP, LS, NS, $\nu$)
  – own experience builds up
  – foster young scientists/engineers
  – help to promote science in each country/region
  – technological skill develops in industries
  – bases for international collaborations

• International/global projects
  – participation to bigger projects
  – to catch up with the front runner
HEP in Korea

- **KIMS (DM search)** – @Yangyang Underground Lab. (2003~)
  - DMRC/Seoul/Sejong/Kyungpook/Yonsei/Ewha/KRISI/IHEP/Tsinghua/Maryland
- **RENO (reactor ν) @Yonggwang (2006~)**
  - Seoul/Kyungpook/Sejong/SSKKU/Chonnam/Dongshin/Gyeongsang/Pusan
  - Russian INR-RAS/IPCE-RAS

**International projects**
- Belle, CDF, CMS, ALICE, T2K, (T2KK), CHORUS
- AMS, CREAM

**ILC**
- **Accelerator**
  - RTML(Kyungpook), BPMs(PAL,Kyungpook, Pusan), SC-RF(PAL, Kyungpook)
- **Detector**
  - VTX (Kyungpook, Yonsei, Hangyang, SKKU), Scintillator (Kyungpook)
  - Silicon Tungsten calorimeter (Ewha, Yonsei, SKKU)

D. Son, CHEP/Kyungpook
KEKB / Belle → upgrade to SuperKEKB / sBelle
BEPC-II / BES-III
J-PARC / ν, K, μ ... → upgrade to multi-MW
Daya Bay, RENO
Astroparticle experiments
R&D for next generation accelerators/detectors

|------|------|------|------|------|------|------|------|------|------|

LHC → upgrade phase I → phase II
ILC TDP-I → TDP-II → political decision --> construction
Project-X
Flow used to be One Way, from Asia to US/Europe

Now, many Europeans/Americans are working at facilities in Asia
# Visitors at KEK (ILC only) in 2006

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An Asian Specific Problem

• No central body to coordinate activities in Asia
  – No central laboratory like CERN
  – Each country/region has its own science policy

• However, Asian coordination is in progress at various levels
  – ACFA (Asian Committee for Future Accelerators)
  – AAPPS (Association of Asian Pacific Physical Societies)
  – ASIAHORC (Asian Head Of Research Councils)
ACFA
since 1995

Australia
China
India
Indonesia
Japan
Korea
Malaysia
Pakistan
Philippine
Singapore
Thailand
Taiwan
Vietnam
13 countries/region

WG activities
• LC Physics and Detector WG
• Advanced Accelerator WG
• ALCSC
• ...

Conferences and Schools
• LCWS
• APAC
• ...

Statements to support/encourage
• BEPC-II
• Belle
• Light sources (Thailand, Singapore, Taiwan)
• LC
Advanced Accelerator Technology

China-Japan collaboration
CAEP-IHEP-JAEA-KEK

Korea-Japan collaboration
GIST/APRI-KEK

Taiwan-Japan collaboration
NTHU-NSRRC-KEK

India-Japan collaboration
RRCAT-KEK

SILEX-I 300 TW 30 fs Laser System

100 TW 30 fs Laser System
AAPPS since 1990
Association of Asia Pacific Physical Societies

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<th>Organization</th>
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~100,000 members
cf. 83,000 (EPS), 43,000 (APS)
Future of AAPPS

• Current activities
  – APPC (Asia Pacific Physics Conference) in every 3 years
  – Bi-monthly bulletin

• Renovation of AAPPS just started
  – DPP (Division of Plasma Physics) was established
  – HEP will follow, hopefully

DPP Key Person’s Meetin in Osaka

DPP School on Plasma Physics,
Shanghai Jiao Tong University, May 2007
Asia Office at KEK

- Asia Office helps in establishing an Asia Accelerator Science Network
  - in cooperation with ACFA, AAPPS and ASIAHORC(?)
    - proposed to and endorsed by ACFA
  - AASN is not limited to HEP programs
    - science using light sources and neutron sources
    - accelerator/detector development
    - medical/industrial applications
    - to facilitate exchange of people/information
    - to plan/support symposia, workshops, and schools

- Common outreach activity as the 1st step
News

New Web-site is open for communications in Asian accelerator science community.

アジアの加速器科学のコミュニケーションのための新しいホームページができました。

아시아가속기과학의 커뮤니케이션을 위한 홈페이지가 개설되었습니다。

한국어

日本語

繁體中文

简体中文
국际直线対撞机
走向量子宇宙

국際リニアコライダー
量子宇宙への旅

이제는 이득을 상상하는 것은 어렵지 않다. 여러 가지 많은 가능성 중에서 몇 가지 예를 들어보면 의학, 운송, 실시간 생물학적 영상 구현. 새로운 컴퓨터 도구 개발, 그 리고 통신과 영상 산업을 위한 새로운 영상 도구 개발 등이 있다.

근본적인 연구가 우리 생활에 미치는 직접적인 결과는 이번에 우리가 살고 있는 이 세계에 대한 이해를 통해 우리를 만족감을 얻을 수 있다. 이 세상에의 작품을 탐구하고 이해하려는 우리의 본능은 인간으로서 존재하는데 필수적인 것이다. 이러한 호기심을 보여주는 현대의 학문적 접근법을 사용하여 이 세계에 대한 이해를 다각적이고, 합리적으로 접근하여 우리를 돕는 것이다.
Outreach

• General public
• Academics
• Policy makers
• Media

• The most efficient way is
  – “Neutrino” has become popular in Japan since 2002
  – “Six quarks” or “symmetry breaking” will be popular soon ???

• In addition to outstanding scientific products, steady effort is also important especially to realize large scale projects like ILC
Academy-Industry-Government Alliance for Advanced Accelerator Science and Technology

~60 private companies and ~30 universities/institutions
Suprapartisan Federation of Diet Members to Promote ILC

Liberal Democratic party (LDP), Democratic party of Japan (DPJ), New Komeito (NK), Social Democratic Party (SDP), The People's New Party (PNP), and Japanese Communist Party (JCP)
Group of Science Fiction Novelists visited the Belle experiment

Anime to promote the ILC created by ILC supporters
http://jp.youtube.com/watch?v=P3MSABaxW6o
Summary

• Asia is growing not only in economy but also in physical science
  – 3 HEP accelerators, 25 light sources,…
  – several underground facilities
  – ~100,000 physicists

• Coordination body is missing, but action to strengthen cooperation is in progress
  – Asia Office, ACFA, AAPPSS, ASIAHORC,…

• HEP is gaining publicity in Japan
  – Nobel prizes, LHC, ILC,…