

THE BIENNIAL AFRICAN SCHOOL OF FUNDAMENTAL PHYSICS AND APPLICATIONS (ASP)



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<http://www.africanschoolofphysics.org/>

Outline



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- Objectives
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- Program
- Organization
- Financial support
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- Outlook
- conclusions



Objectives



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- **Increase capacity in fundamental physics and related applications**
 - Organizing a biennial school rotating in different African Countries
 - Networking among African Students
 - Sharing of information on high education opportunities around the world
- **First edition of the school, ASP2010**
 - August 1-21, 2010 (3 weeks) in Stellenbosch, South Africa. Attended by 65 students from 17 African countries. **125 applications received**
- **Second edition of the school, ASP2012**
 - At the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi Ghana. July 15 – August 8, 2012 (3.5 weeks). Attended by 50 students from 15 African countries. **138 applications**
- **Third edition, ASP2014**
 - At the Cheikh Anta Diop University in Dakar Senegal. 3-23 August 2014. Attended by 56 students from 17 countries. **330 applications received.**
- **4th Edition, ASP2016**
 - 1-19 August 2016 in Rwanda
- **School participation is free of charge to the selected students**
 - Full bursaries for selected students
 - The total cost per student for 3 weeks is €3200 (international student) and €2000 (local student).





The issue and the context

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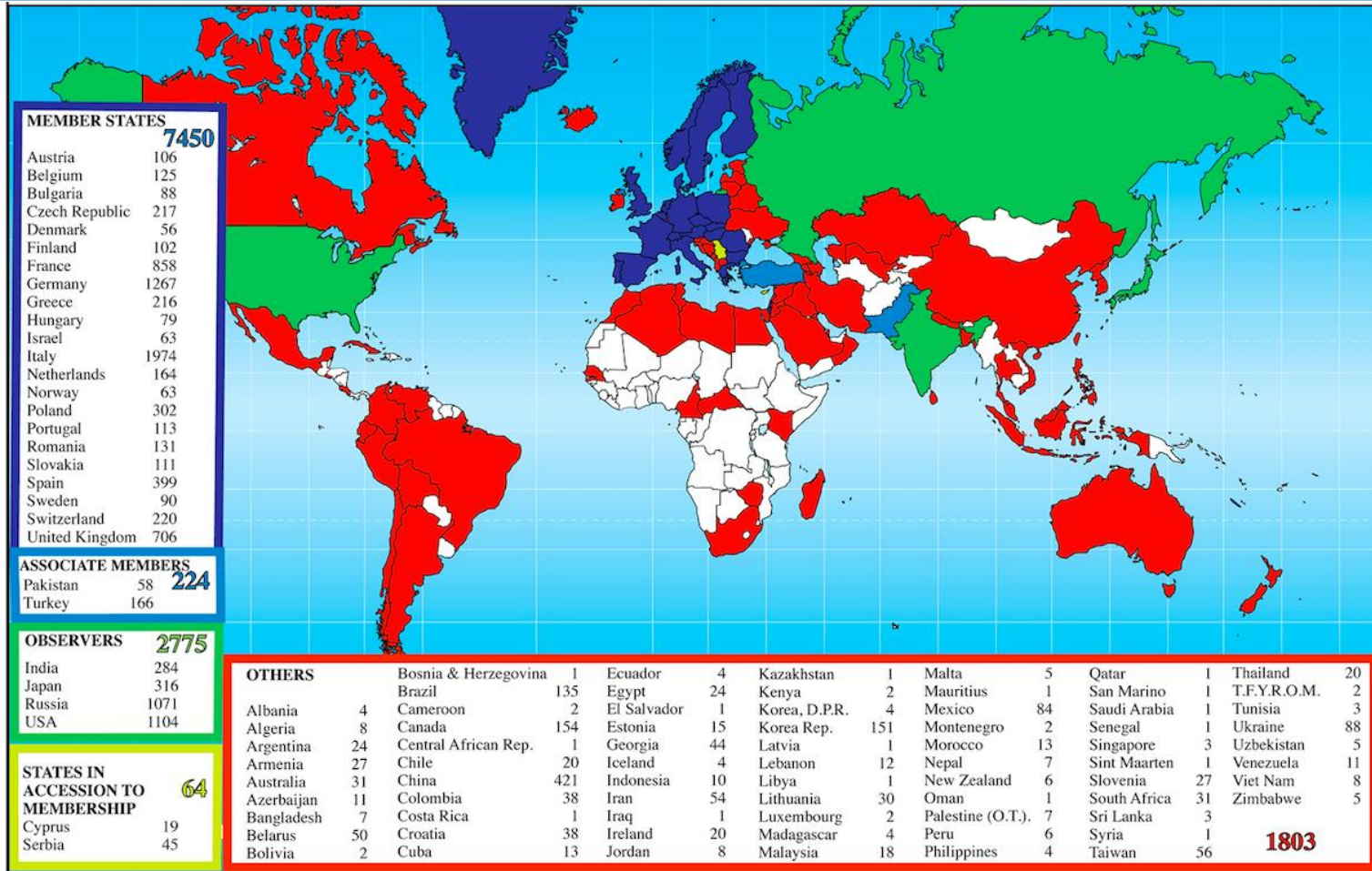
- Low participation of African scholars in major research labs around the world. Some examples:
 - CERN users
- Not limited to CERN
 - Broader issue



About 0.5% of CERN users are African Nationals



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The program



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- Theoretical physics
- Experimental physics
- Applications
 - ▣ Nuclear medicine
 - ▣ Accelerator physics
 - ▣ Light sources
- Simulations, data analysis
- Information technology, grid computing
- **Research areas of the interest to the host country**

<https://indico.cern.ch/event/528094/other-view?view=standard>



Organization



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- **International Organizing Committee (IOC)**
 - The IOC is the main organizer of ASP
 - The IOC Members:
 - B. Acharya (ICTP & King's College London)
 - **K. A. Assamagan (BNL)**
 - A. Dabrowski (CERN)
 - C. Darve (ESS)
 - J. Ellis (CERN & King's College London)
 - S. Muanza (CNRS-IN2P3)
 - R. Voss (CERN)
- **Local Organizing Committee (LOC)**
 - Local committee in the host country
- **International Advisory Committee (IAC)**
 - Advises on various aspects of the organization including fund raising

How to contact the IOC: ASP2016-IOC@CERN.CH



Financial Support



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- Voluntary contributions from individuals and institutes. So far from
 - Europe
 - USA
 - South Africa
 - Asia
 - Support from the host country
 - Institutional representatives in the IAC
- Need to improve fundraising and outreach efforts





Host Country Selection

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- **Any African country can bid to host ASP**
 - Host country identified 3 years before the school starts
 - Selected host country invited to get involved the organization of the current school
- **Many factors go into the selection of the host country and the venue**
 - Ability to put together a national, strong, motivated and committed LOC
 - Support from the potential host country (in-kind and financial)
 - Stability and safety
 - Internationally well-connected for easy travels
 - etc
- **Rwanda was selected for ASP2016**
- **A year before the school starts**
 - IOC makes site visit to the host country
 - Meetings with the LOC, inspections all possible venues
 - Venue selected



ASP2012 Support from



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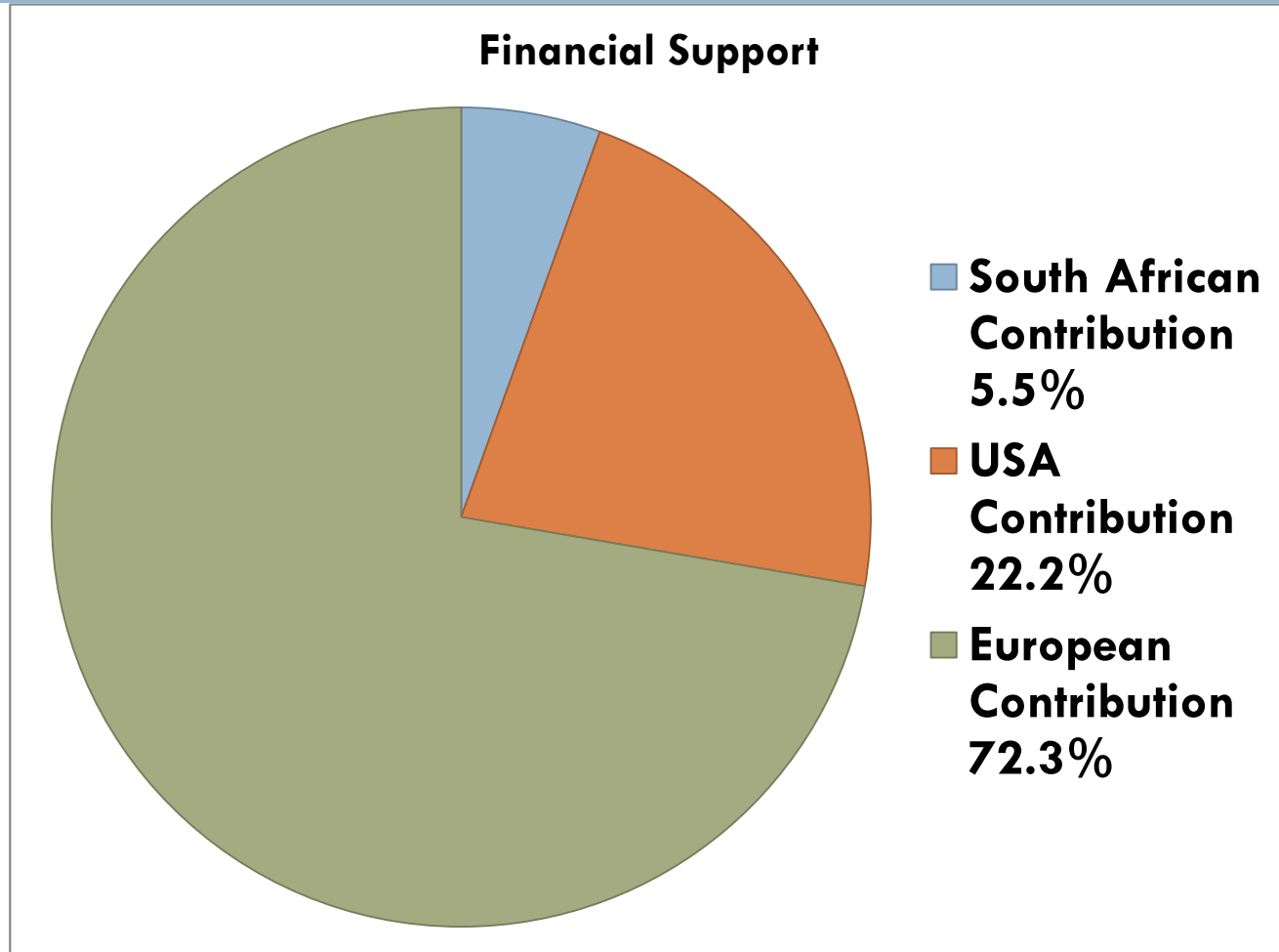
- Total Support received: €1 19730. In addition to:
 - Transportation and accommodation coverage for most lecturers from their own institutes
 - In-kind support from Ghana



ASP2012 Financial Support



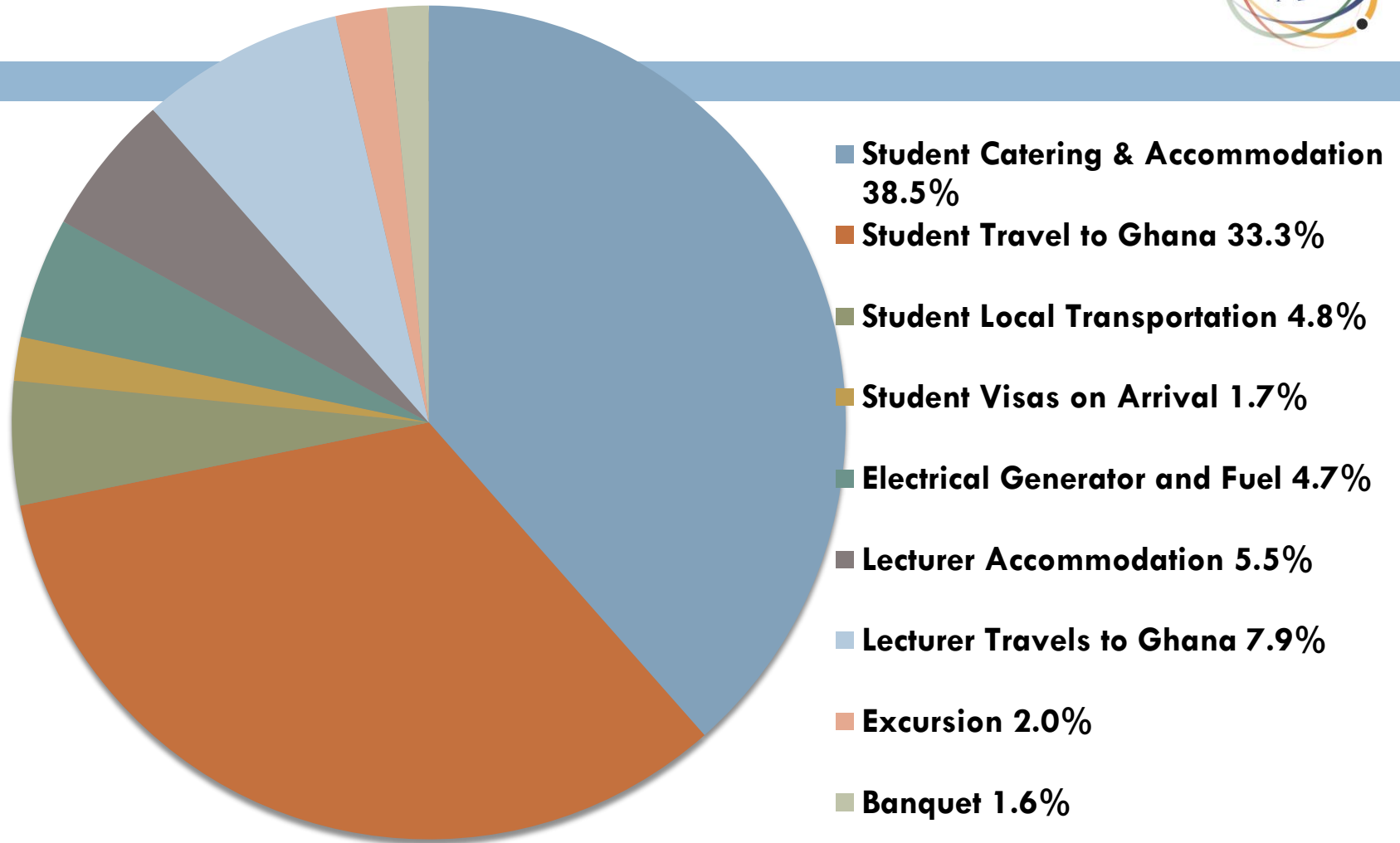
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ASP2012 Expenditures



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The funds mostly spent to maximize student attendance

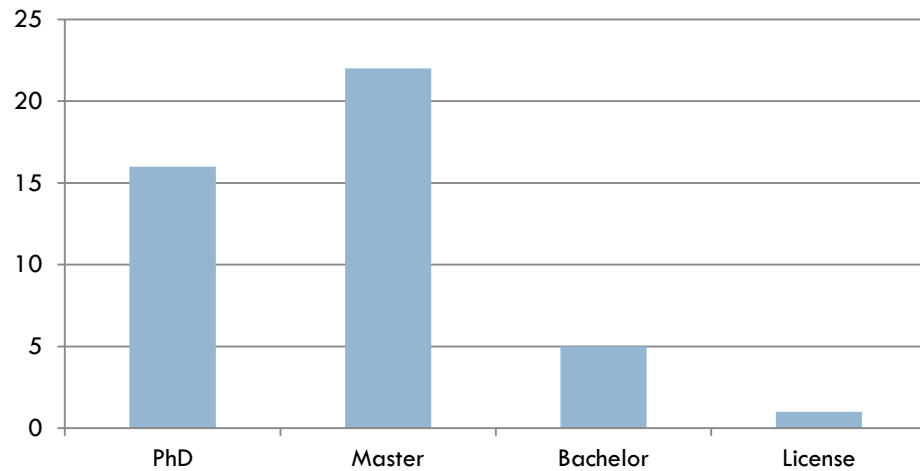


ASP2014 Student Profile

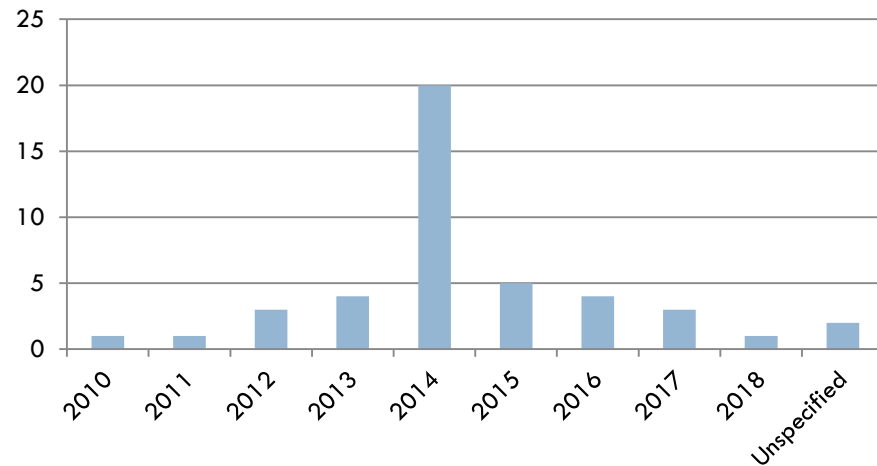


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Degree



Expected Year of Graduation

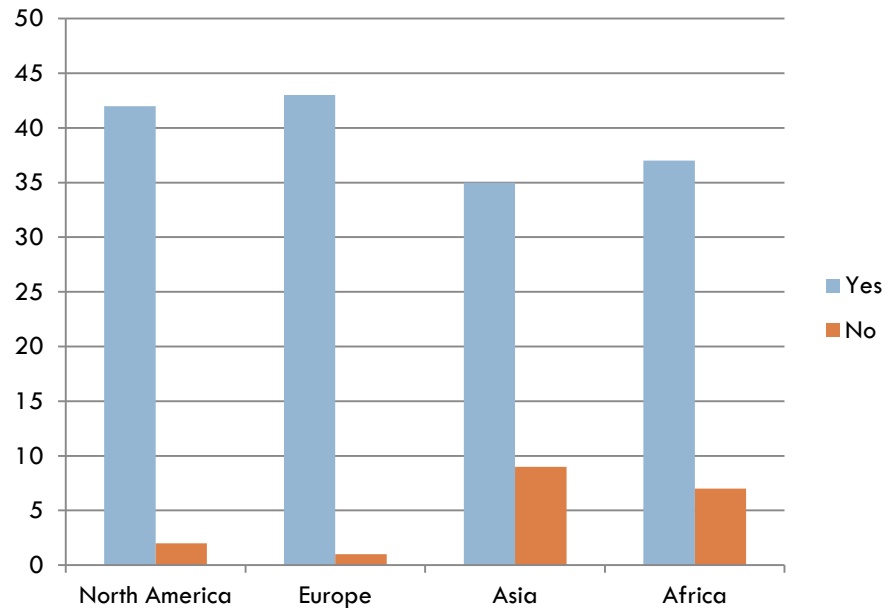


ASP2014 Student Survey



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- 100% of the students said that they will recommend to school to others
- Looking for opportunities for higher education

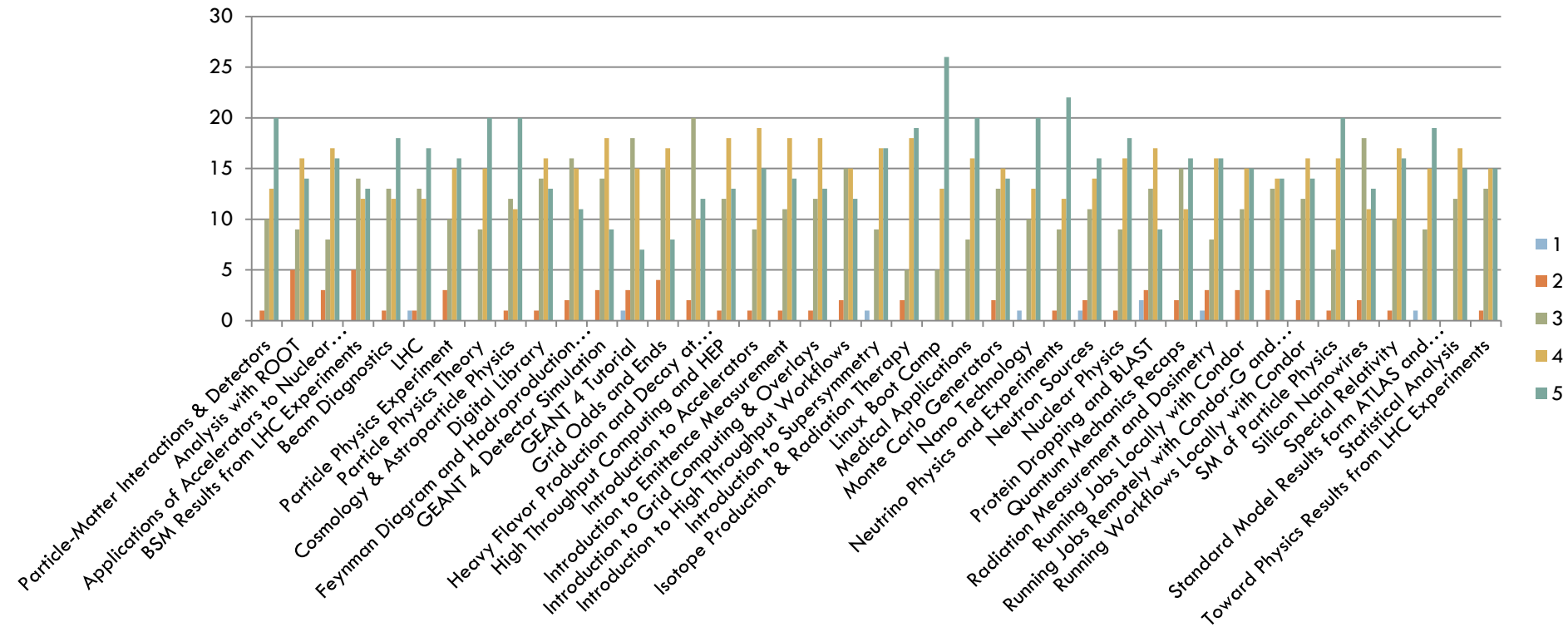


ASP2014 Student Feedback



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- Student impression of each lecture given at ASP2014. “5” being excellent

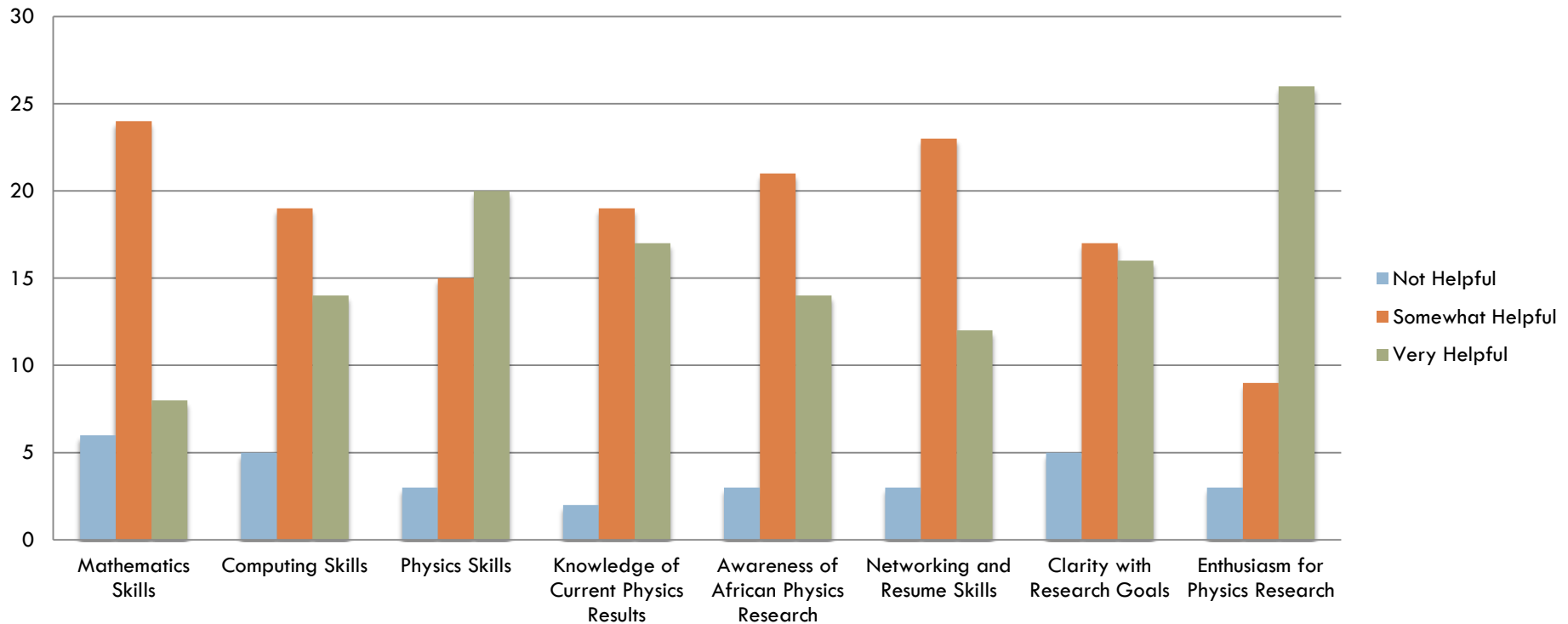


Feedback from African Institutes



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Did you see improvement in your student's skill after their attendance at the African School of Physics?

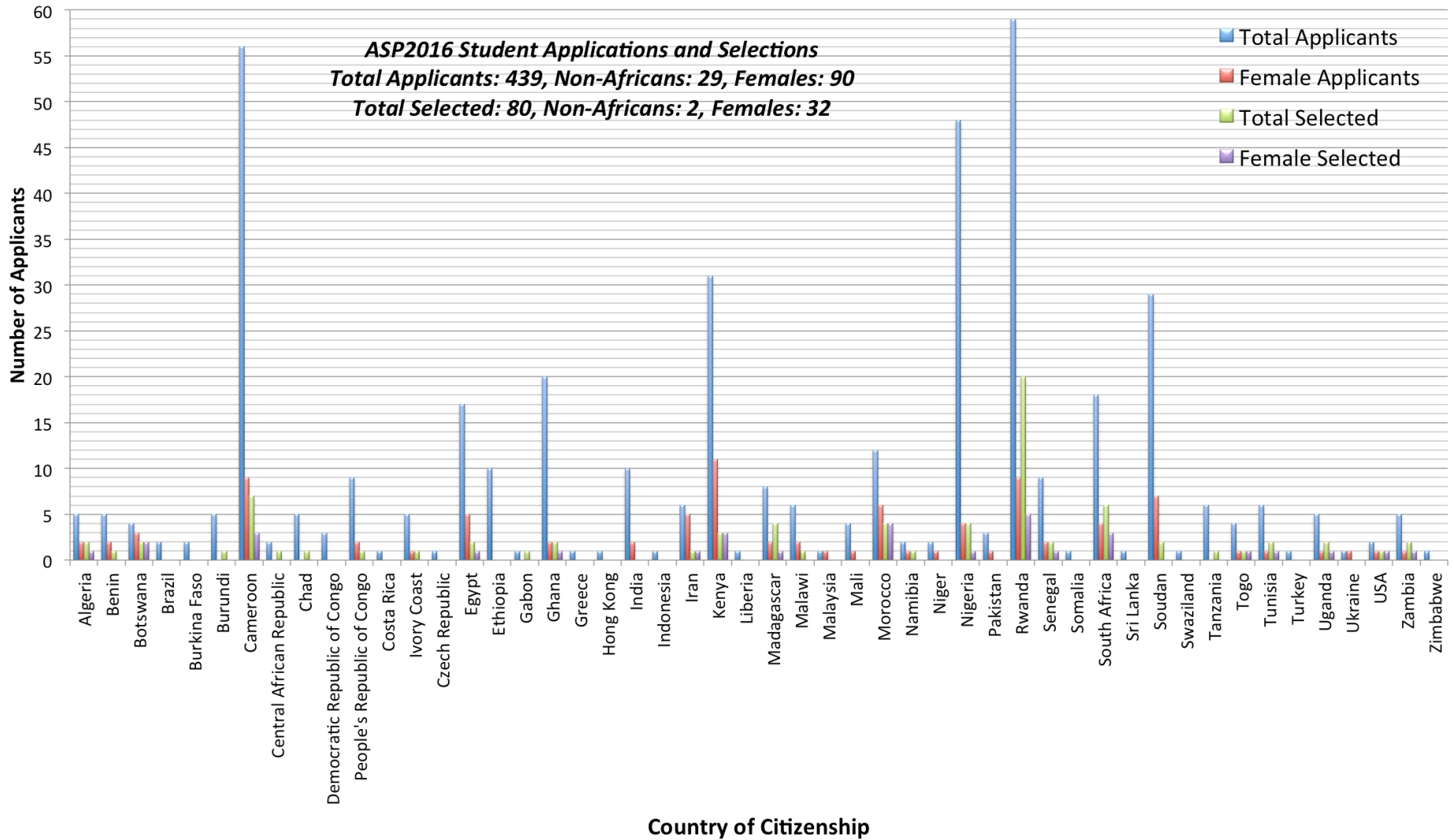


ASP2016 - Rwanda



ASP2016 Student Applications and Selections
Total Applicants: 439, Non-Africans: 29, Females: 90
Total Selected: 80, Non-Africans: 2, Females: 32

- Total Applicants
- Female Applicants
- Total Selected
- Female Selected



ASP2016

THE FOURTH BIENNIAL AFRICAN SCHOOL OF FUNDAMENTAL PHYSICS AND APPLICATIONS



East Africa Institute for Fundamental Research
University of Rwanda
Kigali, Rwanda
August 1-19, 2016

THE FOURTH BIENNIAL AFRICAN SCHOOL OF FUNDAMENTAL PHYSICS AND APPLICATIONS

East Africa Institute for Fundamental
Research, University of Rwanda,
Kigali - Rwanda

August 1-19, 2016

Application: asp2016-registration@cern.ch

Deadline: Open for application from **Dec 14th, 2015 to March 31st, 2016**. Bursaries and full support for selected students. Provide a CV, transcripts, letter of motivation and one recommendation letter with your **Online Application**.

Contact: asp2016-ioc@cern.ch

Website: www.africanschoolofphysics.org

Physics Topics:

- Theoretical Physics
- Particle Physics
- Nuclear Physics
- Medical Physics
- Monte Carlo Generators & Simulations
- Accelerators & Technology
- Grid Computing



International Organizing Committee:

B. Acharya (ICTP and King's College London),
K. Assamagan (BNL), **A. E. Dabrowski** (CERN),
C. Darve (ESS), **S. Muanza** (CNRS-IN2P3),
J. Ellis (King's College London), **R. Voss** (CERN)

Local Organizing Committee:

G. Bajpai (UR-College of Science & Technology),
T. Brown (Carnegie Mellon University Rwanda),
M.C. Gasingirwa (Rwanda Ministry of Education),
M. Hughes (Rwanda Ministry of Education),
B. Krogh (Carnegie Mellon University Rwanda),
M. Mbonye (UR College of Science & Technology)
S. Mboyo (UR-ICT Section),
P. Muiga (UR College of Medicine & Health Sciences),
E. Munyangabe (Ministry of Infrastructure),
B. Safari (UR College of Science & Technology),
C. Sekomo (UR College of Science & Technology),
J. Uwamahoro (UR College of Education),
B. Wellars (UR-College of Science & Technology)

International Advisory Committee:

H. Bachacou (CEA-IRFU), **U. Bassler** (CNRS-IN2P3),
M. Campanelli (UCL), **S. Connell** (University of Johannesburg),
T. Ekelof (University of Uppsala), **L. Elouadhiri** (TJNAF),
E. G. Ferreira (USC), **J. Gray** (ASP), **H. Gordon** (BNL),
J. Govaerts (UCL), **N. Holtkamp** (SLAC), **J. Huston** (MSU),
O. Ka (UCAD), **S. Kendall** (BNL), **Y. K. Kim** (University of Chicago),
D. Kobor (UASZ), **S. C. Lee** (Academia Sinica),
G. Margaritondo (EPFL), **H. Montgomery** (TJNAF),
M. Nxumalo (NRF), **F. Quevedo** (ICTP), **L. Rivkin** (PSI & EPFL),
J. Senona (DST), **H. Severini** (University of Oklahoma),
P. Skands (Monash University), **R. D. Tabrizi** (Simon Fraser University),
C. Thiandoume (UCAD), **E. Tsismelis** (CERN), **T. Vickey** (University of Sheffield), **Z. Vilakazi** (University of the Witwatersrand),
H. B. White Jr. (Fermilab), **J. Yu** (University of Texas, Arlington)



African School of Fundamental
Physics and Applications



ASP Program Extension



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- **Since ASP2016, the ASP program has been extended**
 - The basic scientific program mentioned earlier
 - A few-days physics workshop for high school teachers
 - 20 teachers from around Kigali currently attending this workshop in the context of ASP2016
 - Outreach to secondary education
 - Plan to visit 3 secondary schools in Kigali on 16-18 August 2016
 - Will visit one school a day
 - Expect about 50 learners, 10-12 grades in each visit
- **The teachers workshop and the outreach to secondary schools become part of the ASP program**
 - In addition to the baseline scientific program for ASP students



ASP Follow ups



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- Maintaining contacts with the students ASP-Students-Network@cern.ch
 - This list contains students from ASP2010, ASP2012 and ASP2014
 - Will be extended with the student list of ASP2016 at the end of this school
 - Exchange of information on higher education around the world
- Direct contacts with individual students
- Laza Rakotondravohitra (Madagascar), a student of ASP2010, awarded Fermilab International Fellowship to pursue Ph.D. there on the MINERvA Neutrino Experiment http://www.symmetrymagazine.org/article/september-2012/african-school-of-physics-student-awarded-fermilab-international-fellowship?email_issue=23
 - He recently got his Ph.D.
- Suzan Bvumbi (South Africa). Attended ASP2012. Ph.D. Nuclear Physics 2014
 - Currently lecturer at the University of Johannesburg
- **Other students from ASP2010, ASP2012 and ASP2014 are pursuing MSc. And Ph.D. in the US and Europe**





ASP Follow ups

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- Opportunities for the host country
 - ▣ Since ASP2012, strategic plan between INFN and Ghana to develop a compact laser facility in Ghana
 - ▣ To feed several fields of research
 - ▣ Serve a wealth of multi-disciplinary applications based on compact laser synchrotron
 - ▣ National infrastructure with advanced resources to develop science and technology at national and international levels
- See the talk by Prof. Luca Serafini



ASP2018 – 5th Edition



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□ ASP2018

- In January 2016, Namibia was selected to host ASP2018
- Two members of the ASP2018 LOC are here
 - To learn about from planning and organization of ASP2016
- IOC to make a site visit to Namibia in 2017





- **The first 3 editions of the African School have been very successful and well received. Due to:**
 - ▣ Support from institutes, Foundations and individuals in Africa, Europe, Asia and the US
 - ▣ Dedication of students and lecturers
 - ▣ Motivation of organizing committee
- **Currently ASP2016 taking place Aug 1-19, 2016 in Rwanda**
 - ▣ So far so good
- **Namibia selected to host ASP2018**
- **The host country of ASP2020 will be identified by December 2017**

Footage of ASP2012: <http://cdsweb.cern.ch/record/1472184>

