

# **ASFAP Path Forward and Feedback from the IAC**

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**2<sup>nd</sup> African Conference in Pure and Applied Physics**  
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# On Science and Society

- **Science is culture**
- **Science is development**
- **Science is needed for survival**
- **Science is global**
- **Scientific talent is uniformly distributed**

# Some personal observations

- **Passion for physics despite difficult working conditions in developing countries**
- **Given opportunities scientists can develop a good scientific career anywhere**
- **Most important resources from any country are human resources**
- **Important: scientists supporting scientists**

# Importance of International Scientific Institutions

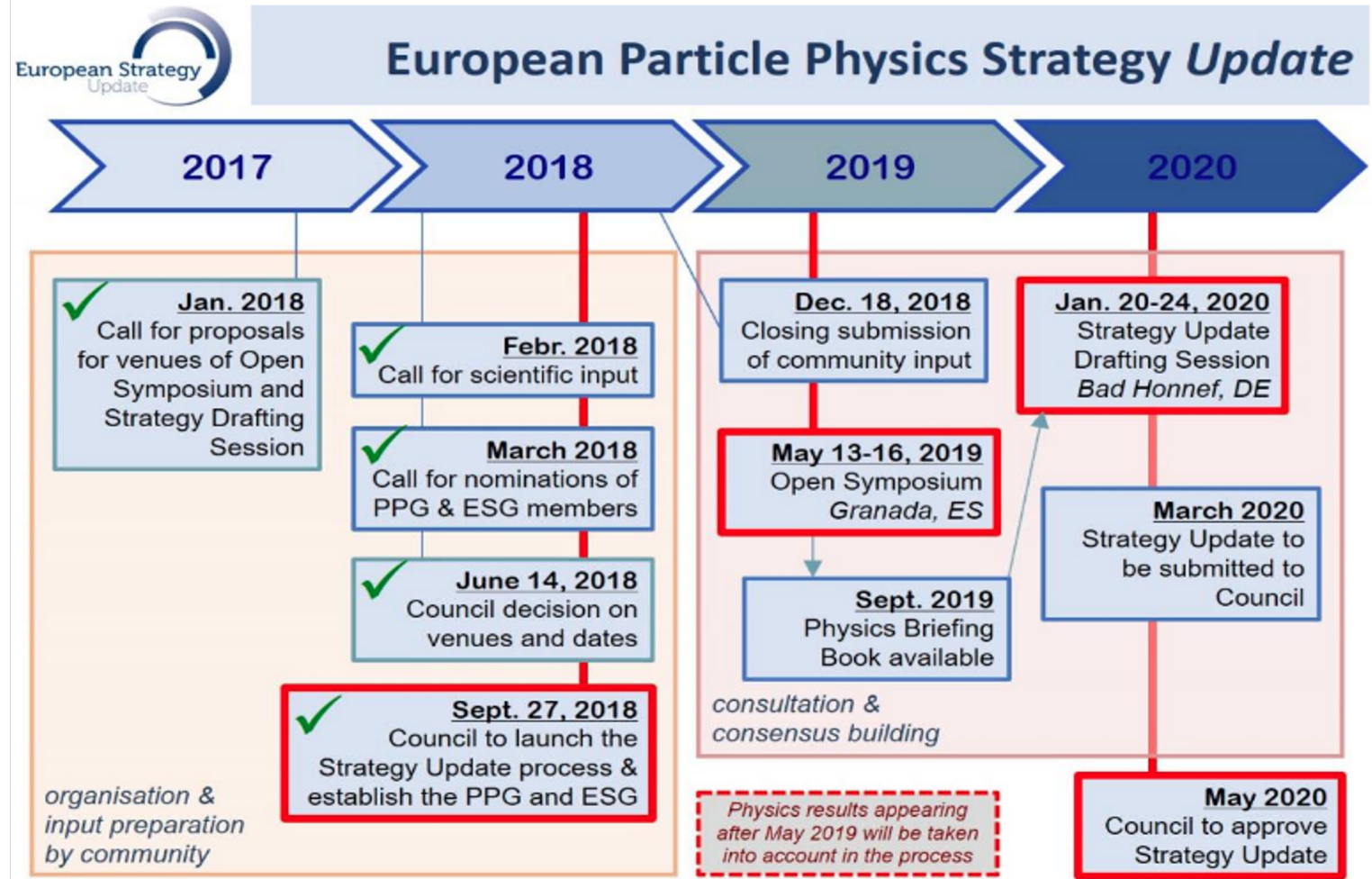
- CERN
- ICTP
- SESAME
- IIASA
- ICGEB ...

# Benefits of strategies of research infrastructure development

- Major advances of knowledge and real hubs of knowledge
- Fostering international collaborations and science diplomacy
- Building science capability and science leadership
- Technology advances and tech transfer to industry
- Stronger and broader opportunities for STEM education, creating new paths to the forefront of global scientific research
- Outreach to communities about benefits of science.

# Models e.g. ESFRI

e.g. Particle Physics



Timeline of the present European Strategy Update process with the green checkmarks symbolising the completed stages.

# LASF4RI Two Prong Approach

- To promote the establishment of the Latin American Strategy Forum Research Infrastructures (LASF4RI)
- To spearhead the process for a specific field of knowledge starting with the fields of Particle Physics and Cosmology .

# Preamble to LASF4RI

- Latin American Physics Schools + CIF + CLAF +....
- SILAFAE (LA symposium of high energy physics)
- HELEN, ePlanet
- Local facilities (Brazil synchrotron, Chilean observatories, Auger, LAGO,...)
- RedCLARA,...
- IMPA, ICTP-SAIFR



# Timeline



Brainstorming with the HEP community at ICTP-SAIFR 5th ann. and XI SILAFAE in Guatemala

Iberoamerican Science and Technology Ministerial meeting in Guatemala: mandate declaration

National Meetings and formation of the Preparatory Group with delegates from 10 LA countries.

## Initial ideas

## Mandate

## Preparatory Group



## Initial landscape

Two-page briefs of 18 experiments. Gathering support from national communities.

## Town Hall

Town hall meeting at the XII SILAFAE in Peru to discuss mandate and next steps



1<sup>st</sup> LASF4RI Workshop and Meeting of the Preparatory Group at ICTP-SAIFR

# Timeline

## LASF4RI Workshop & 1<sup>st</sup> Meeting of Preparatory Group

Deadline for the submission of White Papers to LASF4RI

## White papers

Write-up of the Physics Briefing Book and the the Strategy Document.

## Documents write-up



## High-Level Strategy Group

Definition of the composition of the High-Level Strategy Group for HECAP

## HLSG Meeting

Kick-off meeting of the High-Level Strategy Group

## Open Virtual Symposium

Open Virtual Symposium of LASF4RI for HECAP organized by ICTP-SAIFR, delayed from March due to the pandemic

# Timeline

Recognition of advances  
LASF4RI-HECAP  
process



**IB S+T  
Ministerial  
Meeting**



**High-Level  
Strategy Group**

Endorsement of Strategy Document to the High-Level Strategy Group for HECAP

**Preparatory  
Group Meeting**

Next steps for the Preparatory Group and national processes for next cycle

# Latin American Strategy for Research Infrastructures for High Energy, Cosmology, Astroparticle Physics LASF4RI for HECAP

## LATIN AMERICAN HECAP PHYSICS BRIEFING BOOK

### Preparatory Group

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# PARTICLE PHYSICS & ASTROPHYSICS AROUND LATIN AMERICA



From symmetry magazine  
(Fermilab)

# **Strategy Document**

### **Recommendation 1**

*Support the development and operation of current- and next-generation projects in astronomy, cosmology and astroparticle physics located in Latin America, enhancing leadership roles in these strategic regional projects that drive capacity building and technological development.*

### **Recommendation 2**

*Pursue the establishment of the flagship international laboratory, ANDES, that will enable the region as a global center for underground physics and other sciences.*

### **Recommendation 3**

*Support the existing efforts in international projects in which Latin American groups are actively participating, and in some cases leading initiatives, as a strategy to position Latin America to key leadership roles in future international flagship projects in collider and neutrino physics.*

### **Recommendation 4**

*Support small scale, high impact dedicated experiments across HECAP.*

### **Recommendation 5**

*Strengthen the collaboration among different theoretical groups in the region working in HECAP and their interactions with the experimental efforts.*

### **Recommendation 6**

*Support and develop advanced training programs that harness regional capacities and expertise across all Latin American countries active in HECAP.*

### **Recommendation 7**

*Foster R&D capabilities in key technologies across HECAP, enabling connections with industry, and with possible broader societal impact.*

### **Recommendation 8**

*Enhance the high performance computing infrastructure and internet connectivity in the region.*

### **Recommendation 9**

*Develop formal and stable mechanisms for coordination and funding among research councils and funding agencies at the regional level to support HECAP initiatives.*

### **Recommendation 10**

*Encourage the dissemination of knowledge, outreach and the active involvement of the general population in scientific research, boosting Societal Engagement.*



# Recent Developments

- **Establishment of Latin American Association of High Energy Physics (October 2021)**
- **LaConga (EC-funded virtual master programme on advanced physics)**  
<https://laconga.redclara.net/en/home/>
- **Working with funding agencies towards implementation of a research hub.**

# LASFRI and ASFAP

- **Similar challenges**
- **Both bottom-up**
- **Some differences (focus vs broadness, etc.)**
- **Clearly are supporting each other**

**Thank you and  
all the best for ASFAP's success!**

# High-Level Strategy Group

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Pio Arias – delegate of Venezuela


Félix García Lausín - Representative of SEGIB

# Endorsement by the HLSG

The **LASF4RI-HECAP Strategy Document** addresses several aspects that need to be simultaneously developed to sustain a thriving research environment which includes fostering R&D for key technologies, enhancing the computing and network infrastructures, advanced training of the younger generations, and broad dissemination of knowledge with increased initiatives for citizen science. The importance of reinforcing connections between theorists and experimentalists to advance the research questions posed and the exploration of answers through experimentation is clearly stated and is considered of great value by the HLSG.



The recommendation for stable and continuous mechanisms for funding and coordination at the level of funding agencies and research councils for HECAP is of paramount importance and this HLSG endorses it enthusiastically.



Finally, the HLSG strongly recommends that the HECAP community put in place a robust structure and mechanisms that would allow the community to come together, on a periodic basis, ideally about every five years, to examine progress and consolidate community input to develop and/or update the strategic plan for the region. The European Particle Physics Strategy Update and the United States “Snowmass” processes are examples of successful national/regional models. Such sustained and recurring community engagement in the strategy development process will ensure regional coordination in the participation, as well as in developing leading roles, in regional and global scientific research infrastructures. This would also facilitate funding agencies in their decision-making process to adequately support the HECAP efforts in Latin America.



**Given the above considerations the High Level Strategy Group expresses its endorsement of the 2020 LASF4RI-HECAP Strategy Document.**

# AstroParticles/Cosmology

ALPACA LAGO AUGER HAWC DarkSide DAMIC TOROS/ABRAS QUBIC BINGO LLAMA LSST ASTRI CTA SWGO SAGO

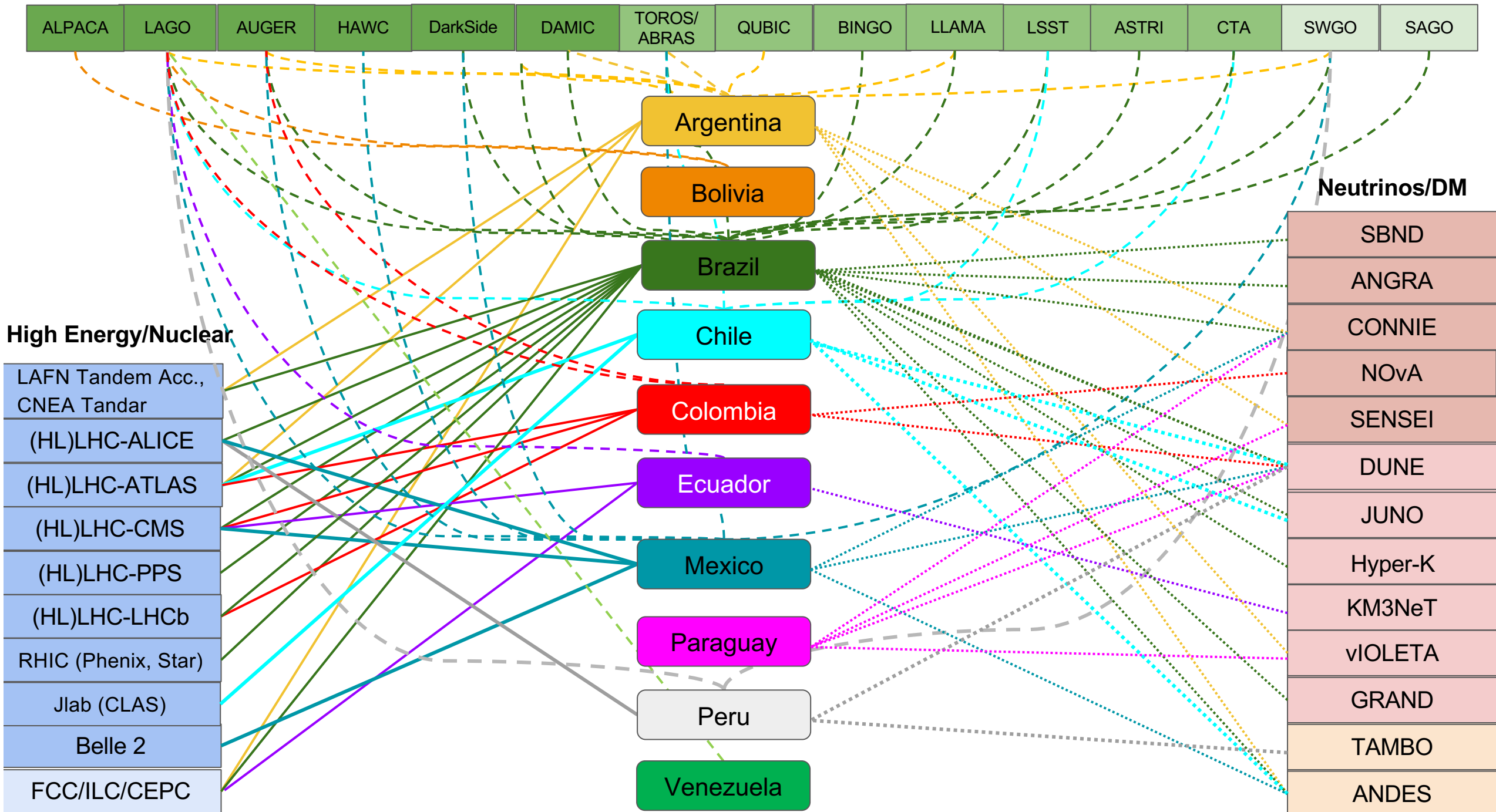
Argentina  
Bolivia  
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Venezuela

# Neutrinos/DM

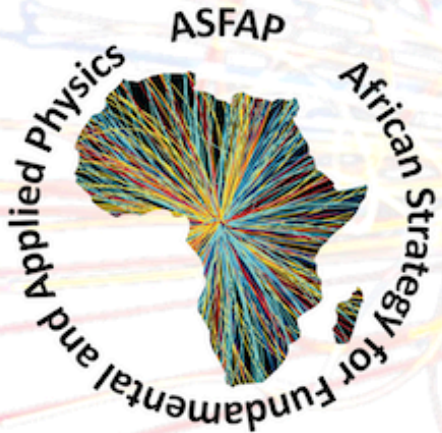
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TAMBO  
ANDES

# High Energy/Nuclear

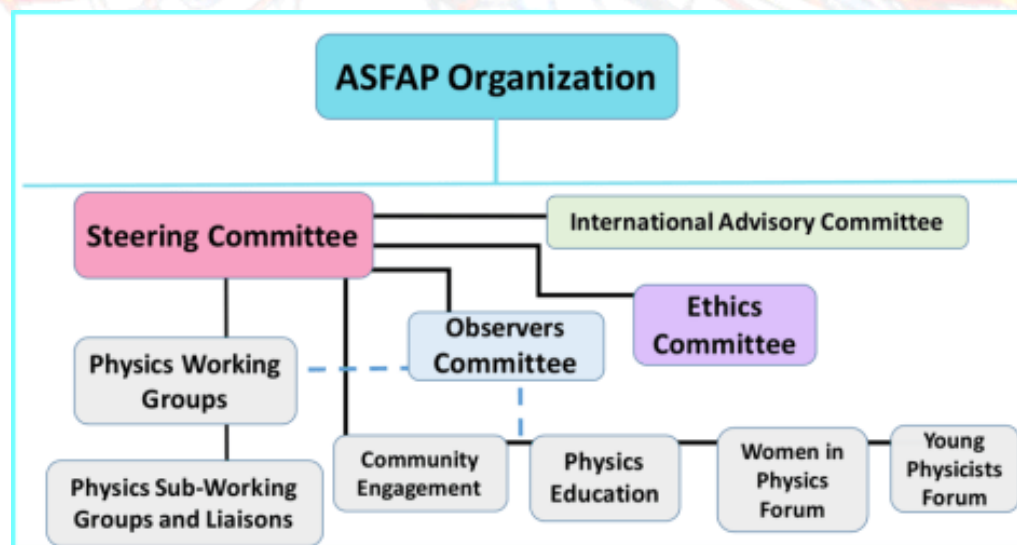
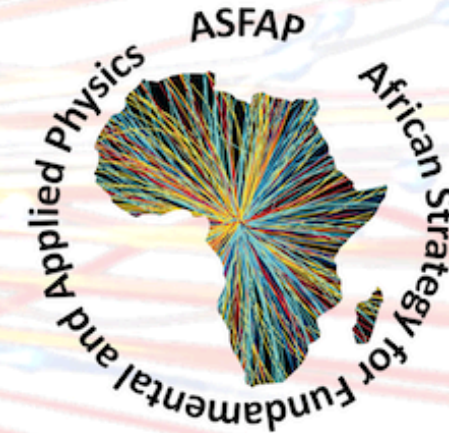
LAFN Tandem Acc.,  
CNEA Tandar  
(HL)LHC-ALICE  
(HL)LHC-ATLAS  
(HL)LHC-CMS  
(HL)LHC-PPS  
(HL)LHC-LHCb  
RHIC (Phenix, Star)  
Jlab (CLAS)  
Belle 2  
FCC/ILC/CEPC



## Broader impact:



# African Strategy for Fundamental and Applied Physics



Official Launch November 18 2020

<https://africanphysicsstrategy.org/>