

10th anniversary of the discovery of the Higgs boson, from Africa

July 4, 2022



Selected contributions from the CERN Non-Member Countries

Oumar KA

Senegalese Physical Society

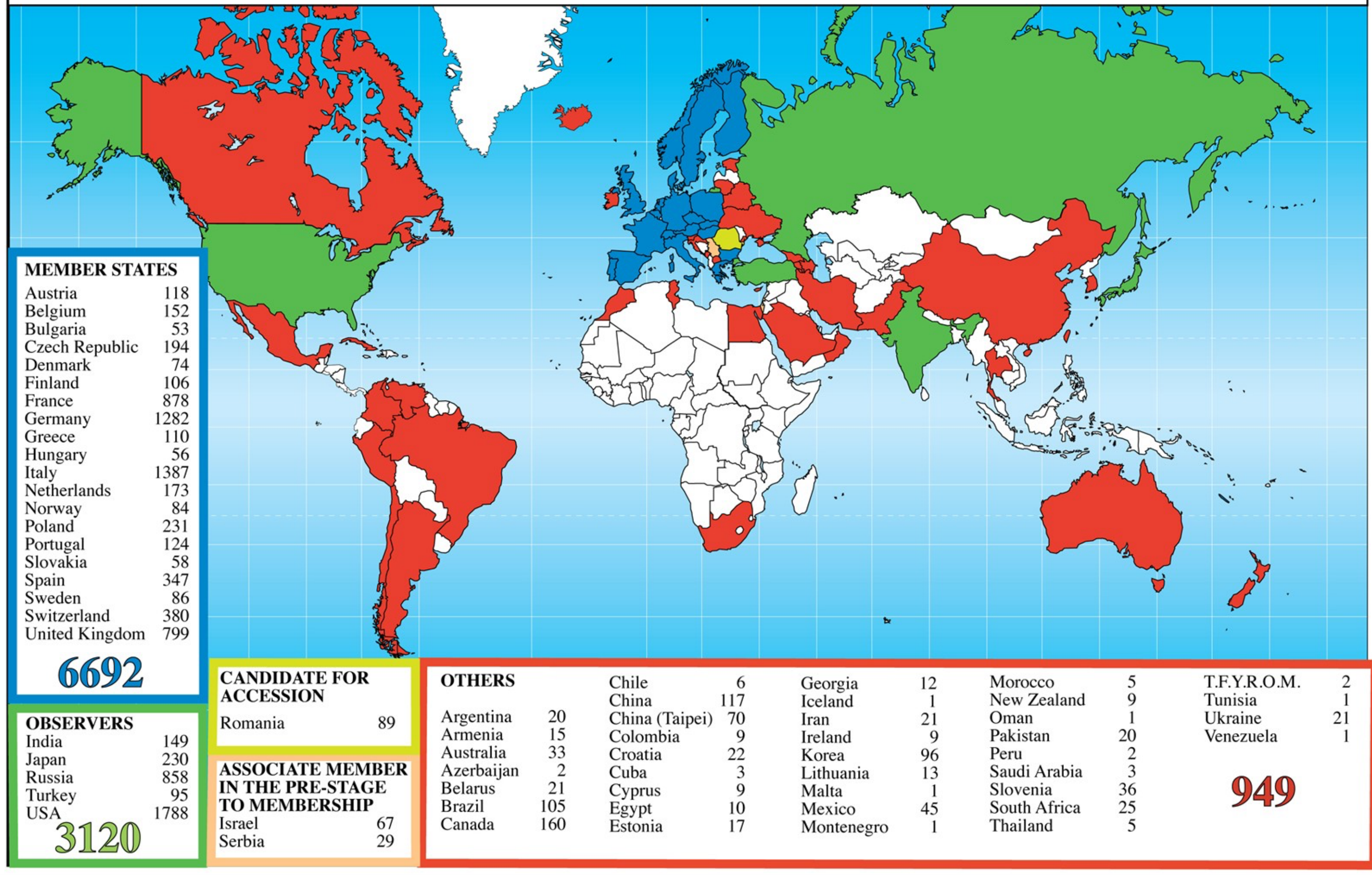
And

Cheikh Anta Diop University, Dakar, Senegal

2012...

Africa and CERN

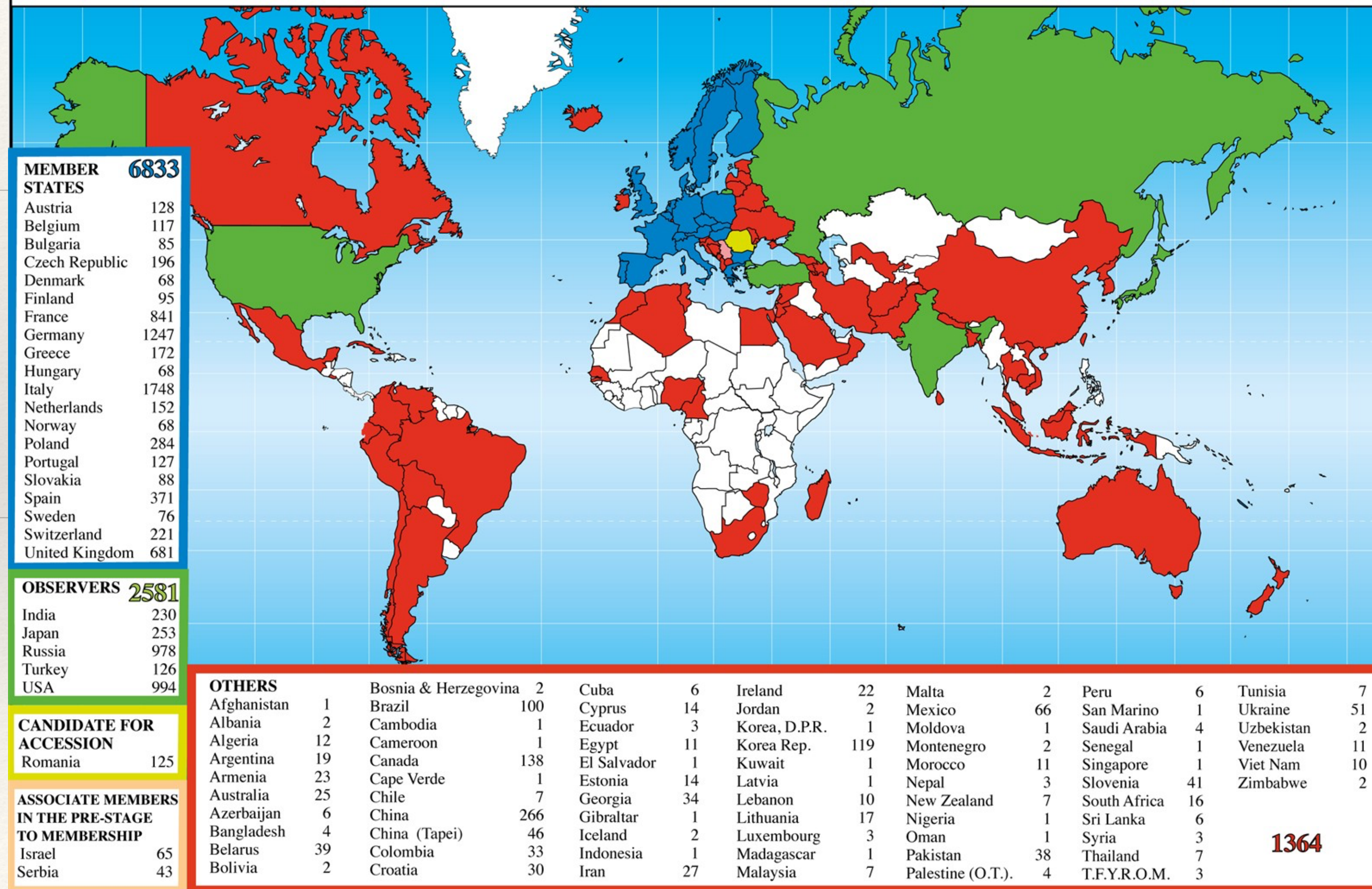
Distribution of All CERN Users by Nation of Institute on 3 September 2012



2012...

Africa and CERN

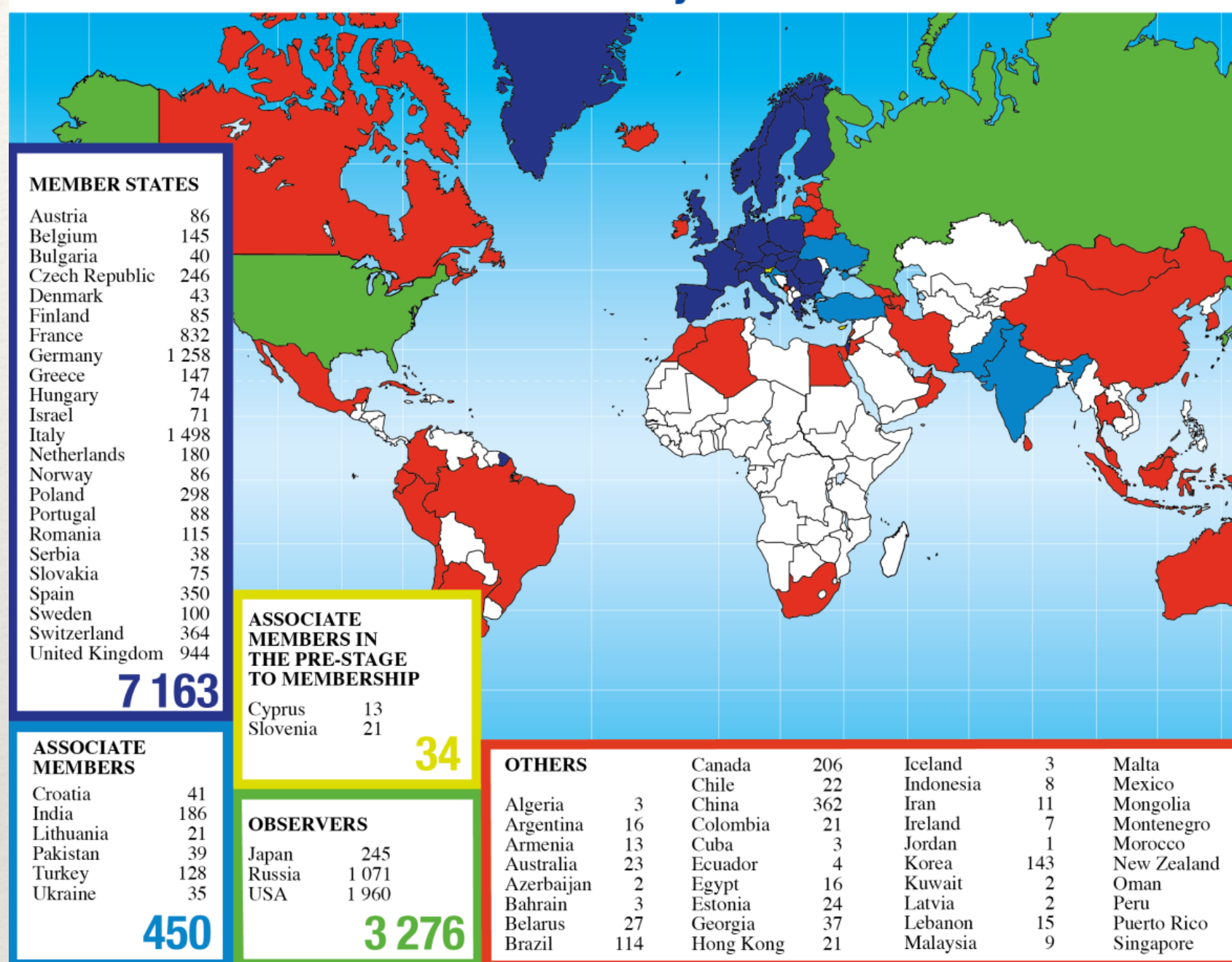
Distribution of All CERN Users by Nationality on 3 September 2012



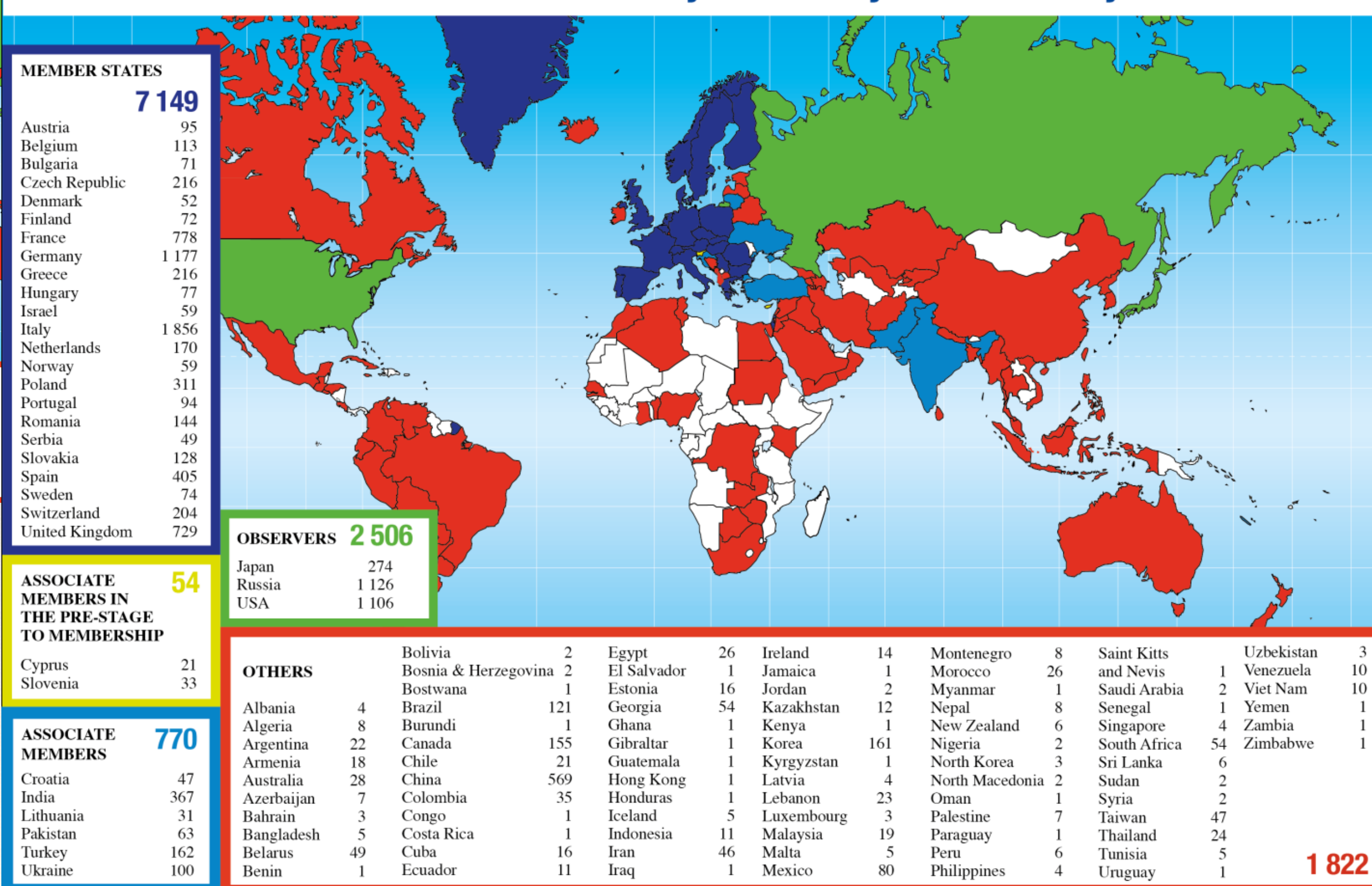
2020...

Africa and CERN

Distribution of All CERN Users by Location of Institute on 27 January 2020



Distribution of All CERN Users by Nationality on 27 January 2020



ASP alumni @ CERN...

Last Feremenga - Zimbabwe

ASP2010 alumnus

ATLAS Member: 2012 -2017

US-ATLAS Fellow: 2013-2014

Chilufya Mwewa - Zambia

ASP2010 alumnus

Currently postdoc at Brookhaven National Laboratory (BNL) based at CERN

Between 2012 and 2020, associated with CERN as an MSC student, summer student, PhD student and postdoc registered with the University of Cape Town

Current work

- Fiducial and differential cross-section measurement of same-charge WW boson production using 139 fb^{-1} collected by the ATLAS detector
- Studies on same-charge WW boson polarizations
- Commissioning and day-to-day operations of the ATLAS Liquid Argon calorimeter

Diallo Boye - Senegal

ASP2012 alumnus

Currently postdoc at Brookhaven National Laboratory (BNL) based at CERN

Analysis contact and contact editor of 2 Beyond Standard Model searches: H/S (Higgs or a Scalar) decaying to two Z dark which decays each to two leptons, and Prospect for limits on the branching ratio of the Higgs to invisible particles for the HL-LHC

Involved in some hardware activities

Hayfa Sfar - Tunisia

ASP2014 alumnus

Currently a PhD based CERN

Abdul Rahim Umar - Ghana

ASP2014 alumnus

Currently a PhD student in the USA

CERN summer student working in the ATLAS TDAQ team when the Higg's particle was discovered

Data acquisition, monitoring and control in real time

Anne Evelyn Dabrowski (South-Africa)

Every-edition alumnus / ASP IOC

Staff physicist at CERN on the CMS Experiment in the Detector Applications Section

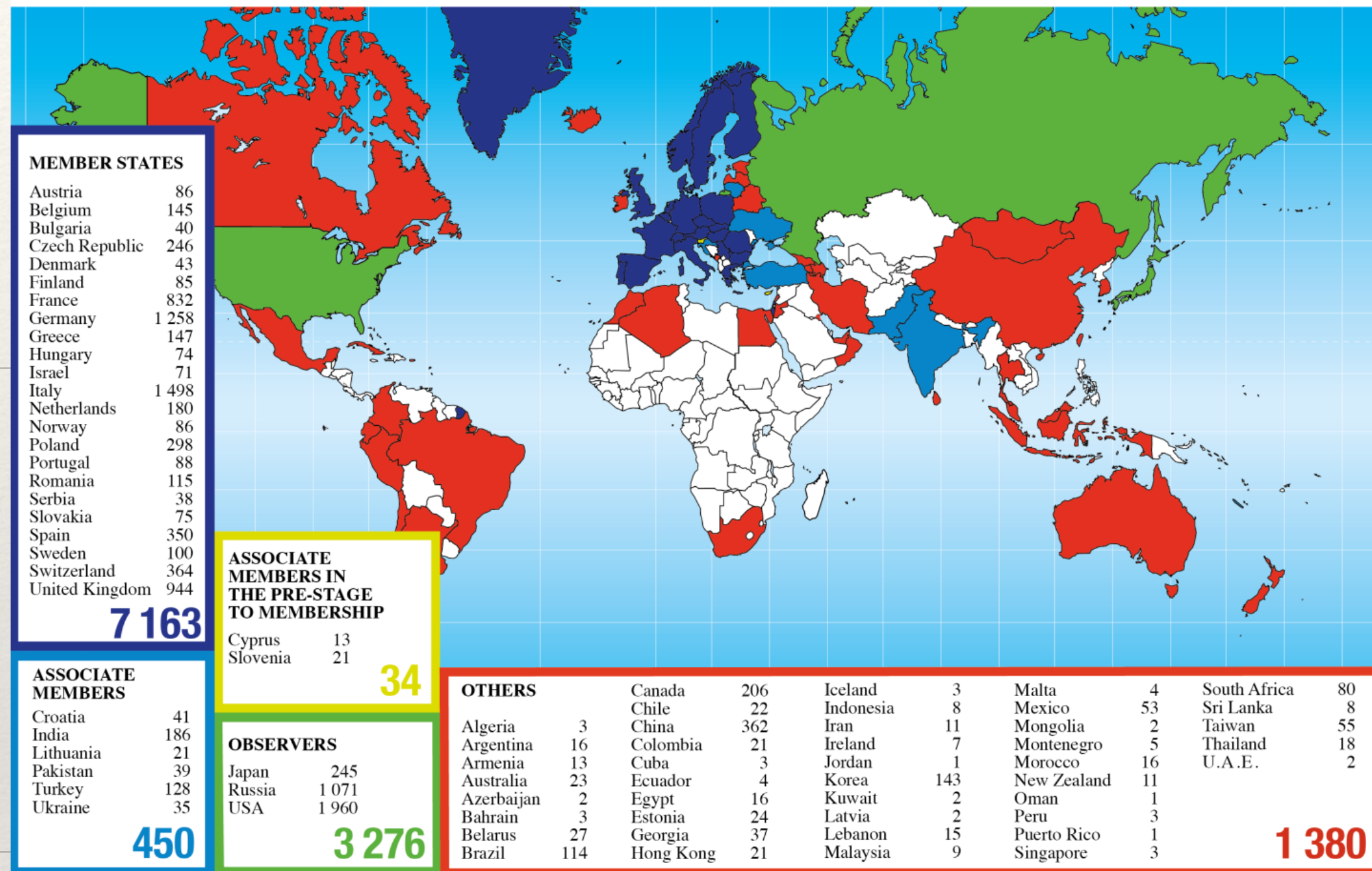
Deputy Upgrade Coordinator of CMS for HL-LHC and former project manager of the CMS Beam Radiation Instrumentation and Luminosity Project

Africa : a L1 manager on the CMS experiment since 2016

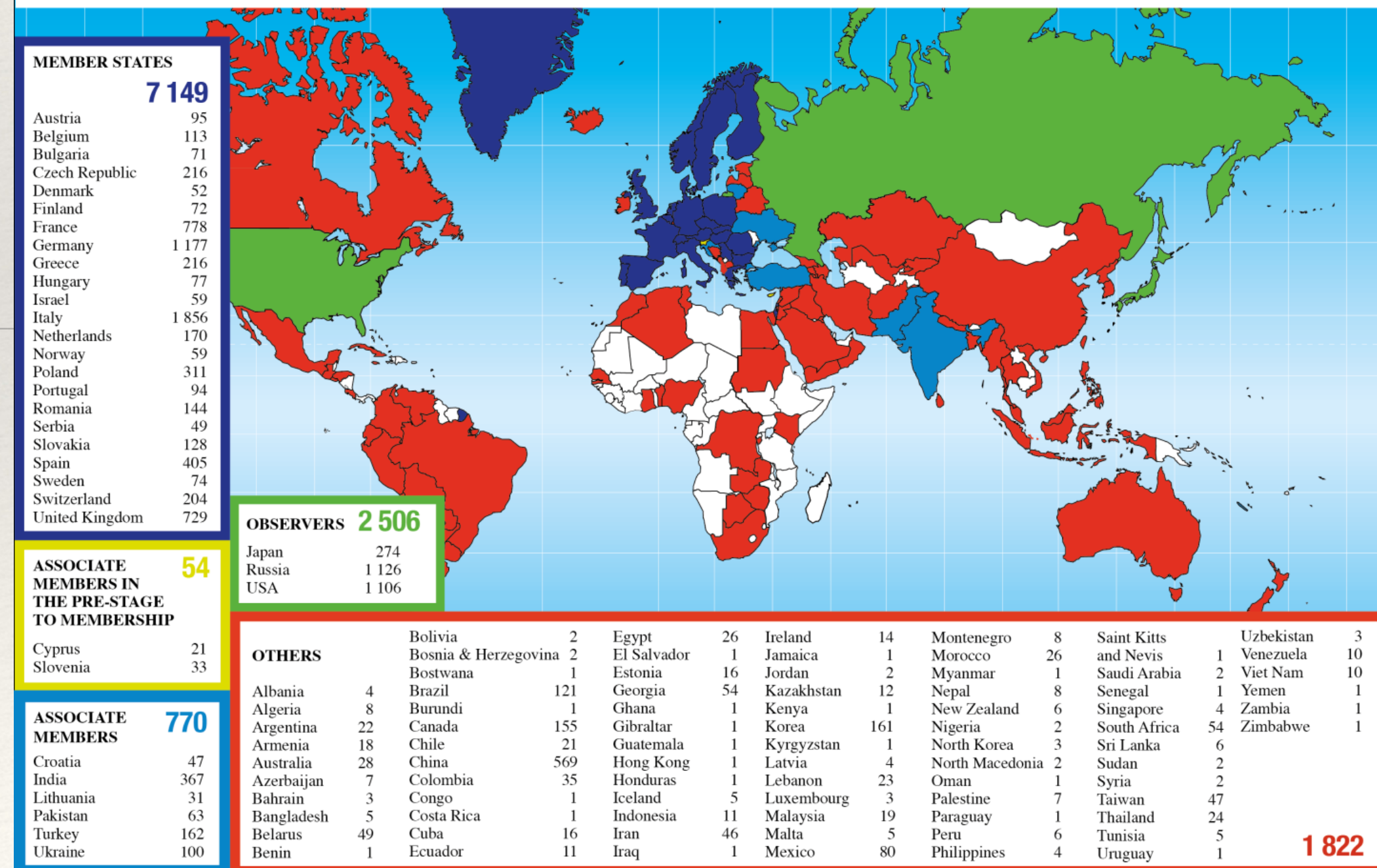
Africa and CERN

HBD20... HBD10 redux ?

Distribution of All CERN Users by Location of Institute on 27 January 2020



Distribution of All CERN Users by Nationality on 27 January 2020



Towards HBD20...

❖ Invite African students to build connection with CERN

- CERN Summer Student Programme (Member and Non-Member State)
- CERN non-Member State Postdoc Fellowship Programme (Theoretical Physics)

❖ International Masterclasses

- ACP2021 contribution from Uta Bilow and Kenneth Cecire

❖ Mentors / Role models

- African alumni can be role models for young Africans

❖ CERN - SA & other models

Towards HBD20...



Towards HBD20...

More and more African countries are showing interest in launching satellites

Why not high energy physics ?

Return-on-investment: potentially high because development of trans-disciplinary expertise beyond physics (HPCs, big data, ML, DL, accelerators,...)

Worldwide LHC computing grid : what with HL-LHC

NSF : a \$25 million effort to help tackle the torrent of data from the High-Luminosity LHC

IRIS-HEP (Institute for Research and Innovation in Software for High-Energy Physics):

- brings together multidisciplinary teams of researchers and educators from 17 universities in the US
- each university will receive \$5 million per year for a period of five years
- focus on developing new software tools, algorithms, system designs and training the next generation of users.

Towards HBD20...

Africas should get involved in big international projects

- EIC (“entry fees” for an African country US\$1 million ?)
 - Fusion energy
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Thank you !

