

Report on IPPOG Masterclasses-to-New-Countries Working Group meeting, 20 April 2017

K. Cecire, 27 Oct 2017

The Masterclass-to-New-Countries (M2NC) working group met at 13:30 CET on 20 April during the 13th IPPOG meeting. The meeting began with a format previously used: each member reports on what they have done and then new approaches to new countries are discussed. During the meeting, member and IPPOG co-coordinator Steve Goldfarb noted that much of this had been done in a previous preparatory videoconference. The group then changed course and went on to new ideas.

Some of the “old business” was still discussed. One particular topic was the new countries that had joined IMC2017: Russia, Georgia, Bangladesh, Philippines, and Montenegro. Rwanda *almost* joined – they scheduled but had to cancel. Ethiopia did not join but a CMS masterclass, not in IMC, was later held there. Other countries that might present opportunities in the future are Azerbaijan, Belarus, Hong Kong, and Taiwan for ATLAS.

Member Kate Shaw presented a challenge that these and other ATLAS countries be brought into IMC. Macao was also suggested as was Mozambique.. Member Marzena Lapka made a list of 16 CMS countries we can approach.

Kate is instrumental in Physics Without Frontiers and she detailed the countries in which they have done university-level masterclasses. Some of these countries have come into IMC and others are doing masterclasses with high school students off the IMC valence shell. Kate has since been giving MC2NC contact information on groups that might be more likely to join IMC after their experience with Physics Without Frontiers.

The group discussed several new initiatives. One was to return to the “expanding masterclasses” concept and explore ways to offer more masterclass experiences to students. Several initiatives on this front are underway: World Wide Data Day, which allows for simple-but-significant masterclass measurements from ATLAS and CMS that can be done by high school teachers and students with little or no assistance. (More on this below.) Also, neutrino physics is very important and can be the subject of interesting masterclasses. One is already underway each year from IceCube, though this is not part of IMC. There is now an effort to bring accelerator-based neutrino masterclasses into IMC: a MINERvA masterclass is expected for IMC2018 and a MicroBooNE masterclass for IMC2019. The longer-term goal is to bring in a DUNE masterclass. In addition, a few weeks before this report was written IMC co-coordinators Uta Bilow and Ken Cecire learned of a Belle II masterclass in the offing.

One of the key ways to expand masterclasses to new countries, especially in the developing world, is to create a Masterclass-in-a-Box, a masterclass low- or no-bandwidth kit that a teacher can unpack at a school with few resources. In the past, the measurement was a simplified version of existing ATLAS and CMS masterclasses. However, World Wide Data Day found success with a different pair of measurements, still from ATLAS and CMS, that should work well in a low/no-bandwidth environment but probe interesting physics without the appearance of shortcuts. This problem solved, the next question is how to adapt the “box” to this and improve it as well. This will be a goal in the next MC2NC Working Group session in IPPOG XIV.