

# My involvement in CIMPA

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The key event for me occurred at lunch during a conference in Stockholm in June 2011, when Marie-Françoise Roy introduced me to Prof. M.O. Ibrahim of Usmanu Danfodiyo University in Sokoto, Nigeria and told us to organize a CIMPA research school there.

While unexpected, the groundwork had been laid for this. I long admired my undergraduate friends who joined the US Peace Corps, and in graduate school had traveled by myself to several developing countries, including visiting a friend in the Peace Corps. As an active researcher, I travel widely and cherish belonging to a community of scholars that transcends national boundaries, language, and culture. I also know that while talent is evenly distributed in this world, opportunity and resources are not.

Marie-Françoise Roy has been very influential to me scientifically and over time I became aware of her role as a Godmother to Mathematics in Africa, while at the same time she learned of my peripatetic ways. Starting in the early 2000s, she has encouraged me to become involved with CIMPA.

Consequently, I was more than ready to accept her directive on that June day in Stockholm. It turns out that M.O. had come to that meeting expressly to ask Marie-Françoise to organize a CIMPA School in Nigeria—there had not been one in Nigeria since 1987. With help from Marie-Françoise, M.O. and I made plans for a two-week Research School at Sokoto in 2013, making a proposal to CIMPA.

The application process was straightforward. The application form and CIMPA's instructions were very helpful; with 35 years of experience, CIMPA is both efficient and accommodating. Our proposal was accepted, and I helped M.O. and his team apply for supplementary funding, and made plans to come to Nigeria in 2012 to help with preparations and planning.

On that trip, I visited five universities and the National Mathematics Centre in Abuja (the capital), traveling from the southwest to the center to the far northwest of that large country. At each institution, I met dignitaries and gave talks to students and faculty. Notable was my visit to the University of Ibadan (Nigeria's oldest) to see a young Nigerian, H. Praise Adeyemo, whom I had met in the U.S., and whose work in Schubert calculus was close

to mine. Besides advertising the CIMPA school and introducing me to the Nigerian Mathematical community, the goal of that trip was a week in Sokoto. There, I and Moussa Seydou, of the Université de Maradi in Niger and a lecturer at our planned school, gave short courses to gauge the mathematical background of potential students. I also assessed the University facilities and accommodations for the school, and discussed its organization and logistics. When I left, matters were in order.

Unfortunately, by year's end, the northern region of Nigeria was declared unsafe to visit by the French Government, and the 2013 CIMPA Research School in Sokoto was canceled.

This visit made a deep impression on me; I was warmly received, and enjoyed my interactions with people. I think this was because they, like the rest of us, love mathematics and are eager to connect to the international community of mathematicians. M.O. visited Texas in 2014 and I returned to Nigeria that summer to visit Ibadan and the University of Ilorin, where M.O. had become Head of Department. On that trip, I started a collaboration with Adeyemo, gave talks, including a short course and math circles (outreach activities) at some schools in Ibadan, and we made plans for Adeyemo to visit me for the winter semester in 2015. When he came, we wrote another paper and decided to apply to CIMPA for a Research School in Ibadan in 2017 on Combinatorial and Computational Algebraic Geometry.

Our proposal was accepted, and I visited again in 2016 to discuss preparations and help make decisions about the school. These visits were important. Hosting 50 students, lecturers, and assistants for two weeks is a big undertaking, for which they had little experience or infrastructure. Planning and applying for supplemental support continued during the 2016–7 academic year which both Adeyemo and I spent at the Fields Institute for Research in the Mathematical Sciences in Toronto, Canada. One difficulty was that promised and hoped for support from Nigerian sources did not materialize, so that we had to seek new sources of support (thank you, Canada). Another was that I needed to be involved quite a bit with details of the local organization. A common theme was our hosts' desire to treat their foreign guests royally, which collided with the lecturers' desire to maximize interaction with the students (and with budget realities). Here, the CIMPA rules that lecturers and students be housed and take meals together was helpful in negotiations. I also came to believe that the local organizers were not particularly experienced at making and keeping within a budget.

In the end, the school was a great success. The students were appreciative

and their enthusiasm drove the lecturers and assistants to work intensely with them. I learned that many of the participants, particularly those from outside Nigeria, knew each other. They had met at previous CIMPA schools, or at the ICTP (International Centre for Theoretical Physics in Trieste), or taken courses together at an AIMS (African Institute for Mathematical Sciences) location. This shows the success of the CIMPA model of engagement; it is nurturing a Pan-African community of mathematical scientists, and enabling interaction between that community and the wider international community.

Organizing this school was not without its moments. A weak point in our plans was getting the funds that were pledged to the school through the international banking system and the University bureaucracy to pay vendors and reimburse participants. Many participants could not simply pay their accommodation and travel up front and be reimbursed later. For example, receipts for ground transportation in Nigeria are nonexistent. Fortunately, and thanks to the flexibility of CIMPA and another funding agency, we were able to balance our books before the school ended. In hindsight, it would have been better administratively to run the school through an existing centre or have a very senior local organizer who had serious clout.

For me, I met a number of younger African mathematicians, as well as many more Nigerians. I have kept in touch with many, and have advised and written letters for some. For most of the lecturers and assistants, this was both their first experience in Africa and their first time at a CIMPA school. Several will, like me, continue to seek opportunities to make a difference in this way. My experiences at the CIMPA school and during my other trips to Africa have been among the most rewarding of my professional career.