

Report on the 8.th PACOM 2013, Abuja

for DMV, GAMM, and the CDC of the EMS

by Andreas Griewank
Humboldt University Berlin, Germany

Background

This was the third PACOM (= Pan African Congress of Mathematicians) that I have attended, the first one was held in Tunis in 2004 and the second one in Yamoussoukro, Ivory Coast, in 2009. Normally, it is supposed to take place every four years, but the one planned for 2008 in Cairo was called off just a few months before it was scheduled. After two conferences in francophone Africa this one took place in anglophone West Africa with the number of participants from outside that region being rather limited. Of course, there is the perennial problem that long distance travelling in Africa is quite expensive, and African institutions have in general no resources to support conference attendance, especially of junior staff in general. This PACOM was apparently exclusively realized by funds from the Nigerian government, which were secured largely thanks to the efforts of the conference chair, Prof. Solarin.

Venue and Security

While the organizers had invited quite a few representatives of professional societies from the North, several officials were unable to attend or discouraged by the warnings issued by various national and international organizations regarding the security situation in Nigeria. Apart from Abba Gumel of Manitoba and some other members of the Nigerian diaspora, a Chinese professor and I were in fact the only Northerners who attended.

I had also been somewhat apprehensive and specifically asked Prof. Ale, the head of the local organizing committee, to make sure I was expected at the airport upon arrival. To my distress I was not, and only after e-mailing from the airport lobby a member of the organizing committee picked me up two hours later. Similarly, the driver that was supposed to take me to the airport at the end of the week did not show up within half an hour of the agreed upon time. So I had to take a taxi recommended by the hotel reception, which seemed of dubious roadworthiness ¹.

The good news is that throughout the conference week, there appeared to be much more reason to be concerned about traffic safety than to be worried about public security. The compound of the hotel Ajuji in suburban Abuja was surrounded by a very solid fence and had police protection round the clock. Unfortunately, the conference itself took place at the Nigerian Atomic Energy Commission, 70 kilometers outside Abuja, which required a one hour ride in rather comfortable and seemingly well-maintained minivans each way. The facility itself was quite suitable and housed most of the participants in hostel style accommodation. Both, the hotel and NMC, were periodically affected by power cuts, but the ubiquitous diesel generators reliably kicked in after a delay of about 12 seconds.

¹The display on the dashboard alternated between the warnings *braking fault* and *ABS fault* throughout the trip to the airport in rainy and thus slippery conditions

We ventured only a couple of times into the center, where the level of insecurity as judged by the presence of police and army does not exceed that in many another capital city. Due to the rather short history of Abuja there is not really much of historical or touristic interest. A popular option for conducting currency changes is on the streets surrounding the Sheraton hotel, and while I had been concerned that changing cash of about 500 Euros would make us a conspicuous target, Abba Gumel found out that this was about the minimal amount that the money changers considered worth a transaction. The notion that much of Nigeria's oil wealth is siphoned off through corruption at all levels is widely accepted and openly written about in the national newspapers. Otherwise the papers frequently carry stories of minor crimes and marital mayhem like in any major city of, say India or the US.

The Nigerians noted of course that Obama did not visit Africa's most populous state on his recent trip and there is a lot of talk about Boko Haram. The day we left there was a heinous attack on a school in the North-East with some 30 students and staff being killed execution style. There is also extra danger for higher level employees of Shell and other Western Companies. Nevertheless, from a statistical point of view, Nigeria now seems not more dangerous than many other countries on earth for the average visitor. Of course, this situation can change any time due to unforeseen political developments.

General Assembly

On Sunday afternoon the General Assembly of the African Mathematical Union with some 20 participants took place at the Ajuji Hotel. I was not present, but it was later announced that, following AMU traditions, the main organizer of the present PACOM conference, Prof. Solarin, was elected to be the next president. While there are no dues and no membership registry, most past presidents continue as members of the executive committee with voting rights, which certainly inhibits drastic change of direction in the whole organization. The very energetic Daniel Makinde of Cape Peninsula University of Technology, South Africa, stays on as General Secretary, and will remain to be an important contact person for non-African organizations. A very positive development is certainly that Jacek Banasiak will continue as the editor-in-chief of the AMU's journal *Afrika Matematika*, which had a virtual rebirth in 2010 when it was accepted by Springer. It has a rapidly growing number of submissions and now publishes four rather than two issues a year.

Opening Ceremony

This was a truly African event, lasting for more than 5 hours in combination with the closing of the Pan African Mathematical Olympiad. The latter packed several hundred high school students into Abuja's International Convention Center Hall, which is modern and well equipped, but feels a little bit bland. The long duration came about through the distribution of prizes to the students and a long wait for the President's wife, Patience Faka Jonathan. The well-known fact that the president cultivates a Zumaesque private life, made it a little harder to stomach

hours of choreographed chants praising 'Mama Africa,' 'Mama Nigeria', 'Mama Mathematica' or simply 'Mommie', who we all were supposed to love.

Many attendees of the ceremony were introduced as Wife of Minister X or Governor Y, which has become rather unusual in Western countries over the last decades. Mrs Jonathan is actually quite an impressive woman herself, who had studied mathematics, biology, and psychology, before she had a stint in the banking sector and then served in the Bayelsa State Ministry of Education, where Goodluck Jonathan was Deputy Governor. Her comportment as First Lady is somewhat controversial as she gets accused of excessive interference, allegedly controlling some government funds without any official mandate, and occasionally putting her foot in her mouth.

This time around she avoided any missteps and was visibly moved by the repeated references to her own mathematics background and the emotional appeal to her motherhood role for science and education in Nigeria and beyond. The local organizers and AMU leaders are expecting some positive rewards for mathematical science projects in Nigeria. One of them went as far as stating that the opening had been a big success, and that the rest of the conference did not really matter very much. As noted specifically by Abba, the exuberant description of African mathematics as a whole and individual mathematicians also betrayed some lack of realism regarding their international standing.

Program and Presentations

The website, the poster, and the hard copy program give a detailed list of all organizing committees and their chairmen. One misses the list of plenary and invited speakers and I must have also overlooked the membership of the program committee. In any case, only representatives of professional societies were invited from outside Africa, and the African invitees also seem to have been invited in part for their professional merits rather than current research activities. Similar tendencies had already been noticed in the preceding PACOMs, but apparently corrective actions have not been taken.

Overall, the scheduling of the scientific program was rather leisurely, and due to lack of effective chairmanship (I was also guilty by missing *my* session), talks often began significantly delayed. Nevertheless, there were some vigorous debates, both regarding mathematical content and the organization of the mathematical sciences in Africa. As was to be expected from a continent-wide conference, the subjects of the presentations were widely spread, including algebraic geometry, analysis, mathematical physics, financial mathematics, and dynamical systems with epidemiological applications. As at any major conference there were some talks presenting minor variations of known results or altogether oblivious to recent developments. For the most part, these deficiencies became sufficiently clear in the subsequent discussion. Apparently, anybody who submitted an abstract was given a slot in the program. A possibly related observation is that many speakers had not bothered to prepare a proper presentation, but just showed enlarged excerpts from papers or other notes.

AUST and AIMS

There was a large number of attendees or recent graduates from the African University of Science and Technology (AUST) at Abuja and a smaller number from the African Institute of Mathematical Sciences (AIMS) at Mbour, Senegal, and Muizenburg, South Africa. These institutions run one- or two-year diploma, master, or PhD courses for African Bachelors and sometimes Masters of Mathematics. Despite some misgivings from the established university programs they seem to do a good job at selecting, motivating and educating a new crop of mathematical scientists for Africa. Afterwards, many of them are looking for the chance to do a PhD or a Post Doc in the North. I could do little more than to point them to suitable graduate schools like the BMS and funding agencies like the DAAD.

Abba Gumel, who was involved in the foundation of AUST, arranged for Jacek Banasiak and me to visit the AUST campus, which lies just outside Ajuba on the way to the NMC. Due to funding by the world bank and the support of local banks and other private organizations, AUST has been able to set up a nice graduate school in the areas of mathematics, computer science and petroleum engineering. Originally, a reasonably close association with AIMS had been envisioned, but that plan appears to be on hold for the time being. Apart from a handful of tenured professors, all the teaching is done in three-week courses by volunteer faculty from all over Africa and the world. They are provided with very comfortable accommodation and an honorarium per course. The students also live on campus, which creates a 24/7 learning atmosphere and is also a hallmark of the AIMS system. The head is currently the mathematician Prof. Chidume, who used to run the mathematics program at ICTP Trieste. Right now there is some complementarity between the AUST and the NMC headed by Prof. Solarin, since the latter focusses very much on school mathematics and teacher education. Within one week I could not really obtain an impression of the other Nigerian mathematics programs.

Conclusion

On Thursday afternoon, there was a symposium on the *Influence of the International Scientific Community on Development of Mathematical Talent in Africa* with Prof. Solarin, Prof. Wandera Ogana of Kenya, and myself on the podium. I have attached my notes for my introductory remarks, which I also used to greet the participants. The day after there was a symposium on the role of financial mathematics, which I could not attend due to problems with the shuttle between Abuja and the NMC. It was reported to have been quite lively.

Overall, its was a good meeting with some 150 attendees and a positive spirit despite some delays and other minor inconveniences. The outlook for mathematics in Nigeria and Africa as a whole is mildly positive and one would hope that the connections not only to the developed countries in the North but also to the emerging countries, especially the BRIC states, can be strengthened and already reflected at the next PACOM, which is currently planned for Tunis.