



# International Science Programme

## Mathematics

### Supporting mathematics research in Africa

Mathematical Institute, University of Oxford

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Leif Abrahamsson

### *Outline of sandwich model, 1967*



Plan of action			
Year	Africa	Int. Seminar in Uppsala	Actions
1968		Come to International Seminar	Prel. contacts Int. Sem.-resp. Physics Dept. "Project Manager", No. 1, appointed, also No. 2 in the project. E= research leader and future expert.
1969	Theoretical and administrative preparations	Research and planning	No. 1 joins the Seminar No. 2 starts preparations at home department
1970	Experimental preparations	Research and equipment construction	No. 2 joins the Seminar and the Africa equipment is set up. No. 1 trains No. 3 in the particular field, mainly literature studies.
1971		Research training	No. 3 joins the Seminar No. 1 and No. 2 receive the equipment and start to set it up.
1972			Swedish expert joins the group in Africa and research can start.
1973			Research and degree studies under way in Africa. No. 1 back to Uppsala for development studies

*ISP 1961-2001*

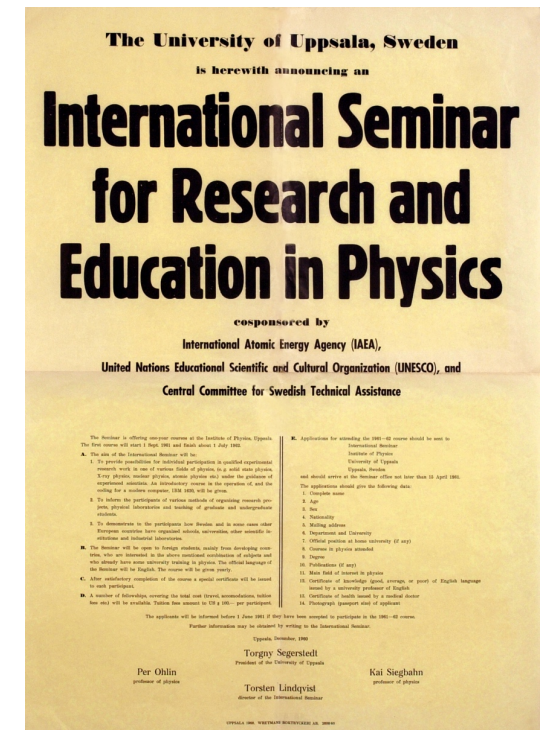


# International Science Programme

## Mathematics

### Short description of ISP:

- Started with Physics in 1961
- Chemistry in 1970
- Mathematics in 2002
- 40 research groups, 20 scientific networks supported in 2017 (1 + 3 in Mathematics), most of them in Sub-Saharan Africa.
- Total budget for “core” activities in 2017: 33,5 MSEK (same for 2018), **5,8 MSEK for Mathematics** (all from Sida)
- Other activities: Coordination of bilateral programmes in Uganda, Tanzania, Mozambique, Ethiopia, and next year also Cambodia.
- Funding from Uppsala University and Stockholm University: 3,5 and 1 MSEK per year, respectively
- Total budget, everything included, about 112 MSEK in 2017.  
*Previously also supported by: IAEA, UNESCO, Norway, and others.*



# International Science Programme

## Mathematics

### Short description of ISP (cont'd)

- Unit at Uppsala University (UU) under the VC



- Governed by a Board – meets at least once a year – chaired by vice rector for S&T (presently Johan Tysk), members from UU; other Swedish/Nordic universities; external members representing international organisations (at the moment AdB), developing countries (at the moment ex-vice president of Tanzania), and more...
- Three programme directors, two deputy, plus administrative staff (14 staff members, not all full time).





# International Science Programme

## Mathematics

### Short description of ISP (cont'd)

The Board also appoints a reference group for each programme, for a period of five years. The reference groups evaluate applications submitted to ISP at their meetings. The granting period is usually for three years (sometimes shorter).



*Reference group meeting 2014  
was held in Seoul before ICM2014.*





# International Science Programme

## Mathematics

### Short description of ISP (cont'd)

"ISP countries" – many only members of networks



Red = Chemistry

Yellow = Physics

Green = Mathematics



# International Science Programme

Mathematics – ISP support to Africa.

## **Networks:**

- EAUMP (UDSM, UoN, Makerere, UR and UNZA); since 2002; *2.9 MSEK in 2018*
- PDE, Modeling and Control (mainly Ouagadougou, Saint Louis and Bamako); since 2003; *1 MSEK in 2018.*

## **Research groups:**

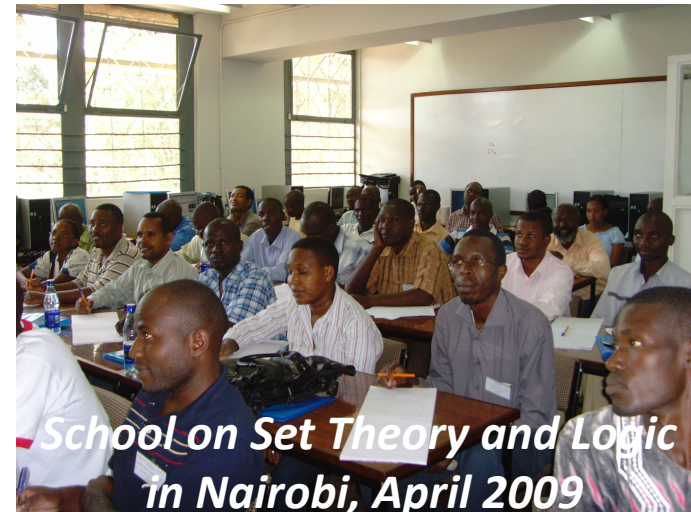
- Addis Ababa University; since 2005; *0.85 MSEK in 2018.*

***New invitations from 2020, and onwards:*** UZ (Zimbabwe), Université Abdou Moumouni (Niger), UMSA (Bolivia) – *so far only reply from Niger.*

## **Activities:**

- PhD-training (sandwich and local/regional), and MSc-training (local/regional); advisors sometimes from abroad
- Post doc training
- Schools, Workshops and Conferences – arranging and participating

E.g. EAUMP has organised (at least) 13 Schools since 2010, mainly in collaboration with ICTP (also w.r.t. funding) – see <http://www.eaump.org/schools/>





# International Science Programme

## Mathematics – ISP support to Africa.

### Collaborating universities:

All Swedish universities are (potential) collaborators.

But the collaboration is not restricted to Sweden. In mathematics universities in Austria, Ireland, United Kingdom, France, Spain, South Africa, Portugal, Norway, USA, ... have hosted PhD-students and Post Doc's/been involved in local/regional training with ISP funding.



*First ISP graduate in Mathematics:*

Egbert Mujuni, and his advisor Herbert Fleischner,  
in Dar es Salaam 2008.





# International Science Programme

## Mathematics – ISP support to Africa (cont'd)

### *Some results:*

*Graduated sandwich PhD's (or just about to defend):*

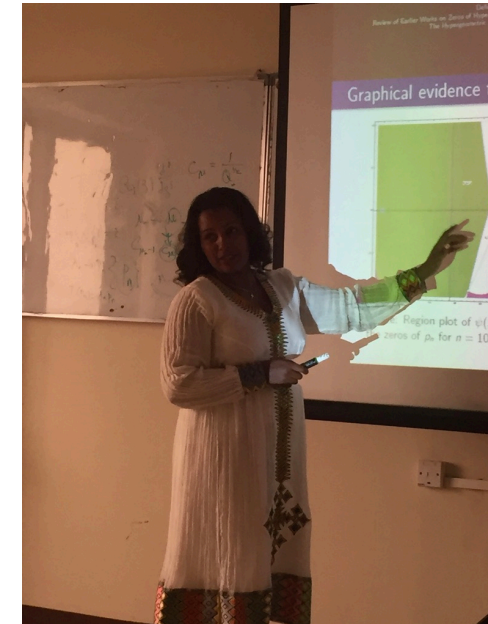
- 24 (EAUMP) + 10 (PDE, Modeling, ...) + 4 AAU

*Graduated local PhD's reported:*

- 2017: 14 (mainly network PDE, Modeling & Control, and AAU have many local students)

*Registered, but not graduated, 2017:*

- 82 (including about 30 new)



	2010	2011	2012	2013	2014	2015	2016
Graduated BURK01 (per year)	2	3	9	10	4	3	11
Reg. per year BURK01	23	29	35	36	27	33	34
Graduated ETH01 (per year)					1	5	7
Reg. per year ETH01	9	13	25	35	38	42	40
Graduated EAUMP (per year)	4	1	1	1	5	4	13
Reg. per year EAUMP	18	17	23	27	26	23	29



## Mathematics – ISP support to Africa (cont'd)

## Some recent Theses (PhD and Lic)





# International Science Programme

## Mathematics

### Some results (cont'd)

#### Publications 2016

Publication category ISP acknowledged (publ. in scientific journals only)	Africa yes / no	Asia yes / no		Total yes / no
Publ. in Scientific Journals (with TR Impact Factors)	3/16	0/1		3/17
Publ. in Scientific Journals ("TR unlisted")	6/50	0/0		6/50
Books, Chapters, Popular Publ., Technical Reports, etc.	0/2			0/2
Total number of publications	9/68	0/1		9/69



# International Science Programme

## Mathematics

ISP 50<sup>th</sup> Anniversary

Thank you!

