

## Second network meeting for Sida- and ISP-funded PhD students in mathematics

Stockholm 26-27 February 2018

**Organizers:** Linköping University (LiU) and the International Science Programme (ISP), Uppsala University (UU)

**Sponsors:** The bilateral programmes in Rwanda, Uganda and Tanzania and the International Science Programme

**Objectives of the meeting:** The purpose of the meeting is to bring together PhD students and postdocs in mathematics supported by Sida (Swedish International Development Cooperation Agency) and ISP to build networks, to share experiences and visions and to learn about each other's research.

**Venue meeting:** Sida headquarters, Vallhallavägen 199, Stockholm

**Hotel:** Best Western, Hotel Karlaplan, Skeppargatan 82, Stockholm

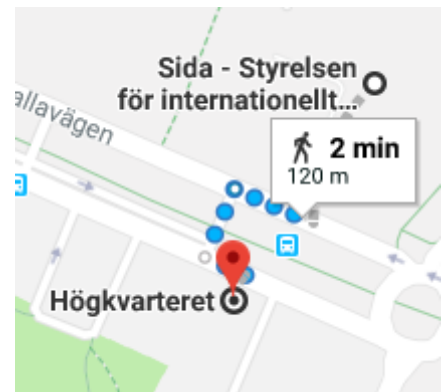
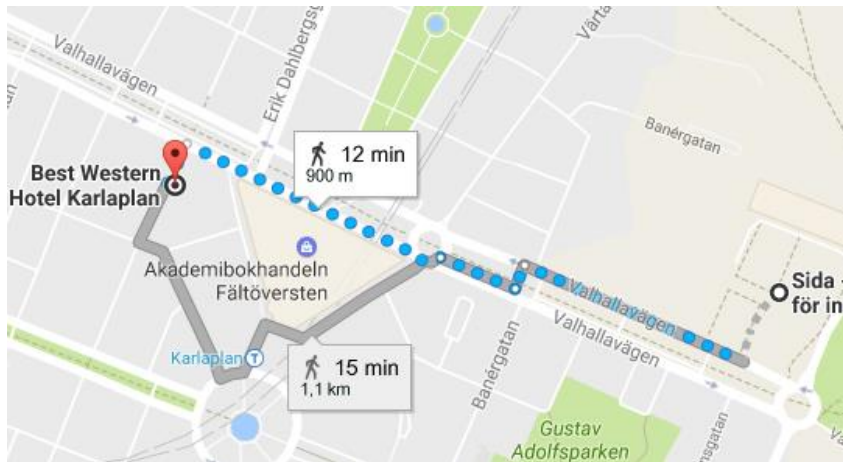
### Participants:

- PhD students in mathematics in the Sida-funded bilateral programmes in Rwanda, Tanzania and Uganda
- PhD students in mathematics in the ISP core programme
- Postdoctoral fellows from African partner universities
- Coordinators from the bilateral programmes and ISP core programme
- Heads of Departments and lecturers from partner universities in East Africa
- Supervisors
- Representatives from ISP
- Representatives from Linköping University
- Representatives from Sida

### Invited speakers:

- Prof. Fanja Rakotonrajao, University of Antananarivo
- Dr. Mikael Wallman, Fraunhofer Institut, Chalmers Research Centre Industrial Mathematics

**Map**



**Programme day 1**

*Second network meeting for Sida- and ISP-funded PhD students in mathematics*

Monday 26 February, Sida Headquarters, Hörsalen		
Time	Activity	Moderators
12:00–13:00	Lunch in Oasen, Sida Headquarters	
13:00–13:10	Welcome note by Sida representative	<i>Leif Abrahamsson (ISP) and Bengt Ove Turesson (Linköping University)</i>
13:10–13:20	Presentation of participants	
13:20–13:30	Welcome note by Leif Abrahamsson (ISP) and Bengt Ove Turesson (Linköping University)	
13:30–14:15	<b>Getting to the heart of cardiac arrhythmias</b> By Mikael Wallman (Fraunhofer Institut)	
14:15–14:45	<b>EAUMP and Sida funded bilateral programmes</b> By Prof. Patrick Weke, University of Nairobi	
14:45–15:15	Refreshment break	
15:15–15:45	<b>Studies and research at home university - challenges and opportunities.</b> <i>Discussion in small groups</i>	<i>Martin Singull (Linköping University)</i>
	Presentations in <b>Mathematical Statistics</b>	
15:45–16:15	Edward Ngailo	
16:15–16:45	Stanislas Muhinyuza	
16:45–17:15	Yasin Kikabi	
<b>17:15</b>	<b>Closure of day 1</b>	
17:30–19:30	<b>Dinner at HÖGKVARTERET, Vallahallavägen 188</b> (2 minute walk, see map)	

## Programme day 2

*Second network meeting for Sida- and ISP-funded PhD students in mathematics*

<b>Tuesday 27 February, Sida Headquarters, room Hörsalen</b>		
<b>Time</b>	<b>Activity</b>	<b>Moderator</b>
08:45–09:45	<b>Studies and research at home university – challenges and opportunities.</b> <i>Presentation per group and joint discussion</i>	<i>Paul Vaderlind (Linköping University/Stockholm University)</i>
09:45–10:00	Alexandre Lyambabaje, Executive Secretary IUCEA	
10:00–10:30	<b>Refreshment break</b>	
10:30–11:00	<b>What we learn, what we get to know</b> By Fanja Rakotondrajao (University of Antananarivo)	
	<b>Presentations in Applied Mathematics</b>	<b>Presentations in Pure Mathematics</b>
	<i>Moderator: John Mango Magero (Makerere University)</i>	<i>Moderator: Jared Ongaro (University of Nairobi)</i>
11:00–11:30	Asaph Muhumuza	Abubakar Mwasa
11:30–12:00	Augustino Isdory Msigwa	Adson Banda
12:00–12:45	<b>Lunch in Oasen, Sida headquarters</b>	
	<i>Moderator: Banzi Wellars (University of Rwanda)</i>	<i>Moderator: David Sseviiri (Makerere University)</i>
12:45–13:15	Benard Abola	Alex Tumwesigye
13:15–13:45	Biressaw Wolde	Innocent Ndikubwayo
	<i>Moderator: Froduard Minani (University of Rwanda)</i>	<i>Moderator: Grayson Kakiko (University of Dar es Salaam)</i>
13:45–14:15	Pitos Biganda	John Musonda
14:15–14:45	Tin New Aye	Vincent Umutabazi
14.45–15:15	<b>Refreshment break</b>	
	<i>Moderator: Shabani Mbare (University of Dar es Salaam)</i>	<i>Moderator: Sylvester Rugeihyamu (University of Dar es Salaam)</i>
15:15–15:45	Uledi Ngulo	David Kolossen
15:45–16:15	Azza Alghamdi (15 min) Iara Alvarinho Goncalves (15 min)	Ismail Geoffrey Mirumbe
16:15–16:45	<b>Closure of the meeting</b>	<i>Leif Abrahamsson (ISP) and Bengt Ove Turesson (Linköping University)</i>

## List of participants

### PhD students and Postdocs

	First name	Last name	Home university	Host University	Email
1.	Biressaw	Wolde	Addis Ababa University	Linköping University	biressaw.wolde@liu.se
2.	Abubakar	Mwasa	Busitema University	Linköping University	a.mwasa@yahoo.com
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\*= Postdocs

### Other participants

	First name	Last name	Affiliation	Role	Email
24.	Mikael	Wallman	Fraunhofer Institut	Invited speaker	mikael.wallman@fcc.chalmers.se
25.	Fanja	Rakotondrajao	University of Antana- narivo	Invited speaker	frakoton@yahoo.fr
26.	John	Mango	Makerere University	Principle Investigator of the Sida funded Mathematics project at Makerere	mango@cns.mak.ac.ug

	First name	Last name	Affiliation	Role	Email
27.	David	Sseviiri	Makerere University	Head of Department of Mathematics at Makerere University	sseviiri@cns.mak.ac.ug
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29.	Sylvester	Rugeihyamu	University of Dar es Salaam	Principle Investigator of the Sida funded Mathematics project at University of Dar es Salaam	rugeihyamu@yahoo.com
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46.	Theresa	Lagali	Linköping University	Programme Administrator	theresa.lagali@liu.se
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## Abstracts invited speakers

# Getting to the heart of cardiac arrhythmias

Mikael Wallman

February 26, 2018

### Abstract

Abnormalities in the heart rhythm is one of the major causes of death worldwide. These rhythm disturbances, or arrhythmias, manifest across the entire organ, but often have their causes at the sub-cellular level, making them notoriously difficult to study experimentally. To bridge the gap between cell and organ, mathematical modelling has emerged as an indispensable tool, able to shed new light on these highly complex phenomena. In this talk, I will give an overview of how mathematical methods are applied to describe, understand and predict cardiac arrhythmias, with applications ranging from medical diagnostics to drug development.

# What we learn, what we get to know

Fanja Rakotondrajao

february 27, 2018

### Abstract

The word *mathematics* has the following different meanings:

1. fond of learning from Ancient Greek μαθηματικός (*mathámatikós*),
2. what we learn, what we get to know from μάθημα (*máthēma*)
3. an abstract representational system used in the study of numbers, shapes, structure, change and the relationships between these concepts.
4. a person's ability to count, calculate, and use different systems of mathematics at differing levels.

In this lecture, I will describe how mathematics activities impact on everyday life namely family life, career and relationships ?