

# NOBEL SYMPOSIA

## *Predictability in Science in the Age of AI*

**STIAS, 24 - 28 October 2022**

**DRAFT PROGRAMME (version of 29 September 2022)**

*The Nobel Symposium in Physics NS183 on “Predictability in Science in the Age of AI” is funded by the Knut and Alice Wallenberg Foundation and organized by the Stellenbosch Institute for Advanced Study (STIAS) in South Africa. The NOBEL SYMPOSIA mark is owned by the Nobel Foundation.*

### **Sunday, October 23**

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17:00 – 19:00 Meet & Greet at STIAS, welcoming cocktail

### **Monday, October 24**

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Session 1. Opening. Chair Hendrik Geyer

9:00 - 9:15 Welcome STIAS (Edward Kirumira – STIAS Director)

9:15 - 9:30 Introducing the Physics Nobel Symposium (Erik Aurell)

Session 2. What is the programme about? Chair Luca Gammaioni

9:30 – 10:30 Angelo Vulpiani; *What is predictability?*

10.30-11.00 Coffee

11.00-12.00 Maria Schuld; *TBA*

12:00-13:00 Winston Soboyejo (Wole); *TBA*

13.00-14.00 Lunch

Session 3. Cosmology and Dynamical Systems (part I) Chair Yinzhe Ma

14.00-15.00 Vyacheslav Mukhanov; *TBA*

15.00-16.00 Neil Turok; *TBA*

16.00-16:30 Coffee and depart for Stellenbosch University campus

***Outreach event: Stellenbosch University, Jan Mouton Centre. Chair: TBC***

16.30-18.00 Michael Berry Public Lecture; *How quantum physics democratised music: a meditation on physics and technology*

18.00-20.00 Stellenbosch University hosted Cocktail Reception

**Tuesday, October 25**

***Launch of the Nobel in Africa Symposia Series.***

08:00 – Light breakfast, tea & coffee

09:00 – MC Opening Remarks

- Welcome by STIAS Director, Edward K. Kirumira
- Stellenbosch University Rector & Vice-Chancellor, Wim de Villiers
- Wallenberg Foundations Chairperson Peter Wallenberg Jr
- Nobel Foundation CEO Vidar Helgesen
- Promoting Science and Innovation in Africa by Judith Omumbo, Science for Africa Foundation

10:30 – Tea Break

11:00 – Themes of the first four in the Nobel in Africa Nobel Symposia Series

- Physics: Predictability in Science in the Age of AI by Erik Aurell & Francesco Petruccione
- Chemistry: Tuberculosis and Antibiotic Resistance – From Basic Drug Discovery to Clinic by Fredrik Almqvist
- Economic Sciences: Micro development research in the last 20 years by Jakob Svensson
- Physiology/Medicine: Progress and Challenges in Cardiovascular Medicine by Göran Hansson

12:00 – The Nobel Prizes in 1932/33: Heisenberg, Schrödinger and Dirac by Mats Larsson

***Symposium sessions continue:***

Session 3. Cosmology and Dynamical Systems (part II) Chair Angelo Vulpiani

14.00-15.00 Roberto Mulet; *TBC*

15:00-16:00 Massimo Cencini; *TBA*

16.00-16.30 Coffee

16.30-18.00 Panel discussion.

Panelists: speakers and chairs of the first two days.

Moderator: Magnus Boman

***Nobel in Africa - Dinner reception at Nooitgedacht Estate***

18.00-22.00 Dinner programme & entertainment

## Wednesday, October 26

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Session 4. Complexity, spin glasses and AI Chair ~~Hai-Jun Zhou~~

09.00-10.00 Matteo Marsili; *TBA*

10.00-10.30 Coffee

10.30-11.30 Federico Ricci-Tersenghi; *TBA*

11.30-12.30 Scott Kirkpatrick; *TBA*

12.30-14.00 Lunch

Session 5. Epidemiology and pandemiology I Co-Chairs Erik Aurell and Erling Norrby

14.00-15.00 Nuria Oliver; *TBA*

15.00-16.00 Christian Happi (virtual); *TBA*

16.00-16.30 Coffee

Session 6. Epidemiology and pandemiology II Co-Chairs Erik Aurell and Erling Norrby

16.30-17.30 Florian Burckhardt; *TBA*

17.30-18.30 Tulio de Oliveira; *TBA*

18.30-19.00 Unstructured discussion time

19.00 Dinner or free evening

## Thursday, October 27

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Session 7. Quantitative Biology / Biological Physics I Chair Francesco Petruccione

09.00-10.00 Massimo Vergassola; *TBA*

10.00-10.30 Coffee

10.30-11.30 Mogens Høgh Jensen; *TBA*

11.30-12.30 Aleksandra Walczak; *TBA*

12.30-14.00 Lunch

Session 8. Quantitative Biology / Biological Physics II Chair Ingemar Ernberg

14.00-15.00 Armita Nourmohammad; *TBA*

15.00-15.30 Coffee

15.30-16.30 Irene Giardina; *TBA*

16.30-17.30 Leihan Tang; *TBC*

17.30-19.00 Unstructured discussion time

19.00-21.00 Dinner or Free Evening

## **Friday, October 28**

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Session 9 AI Chair Petri Myllymäki

09.00-10.00 Max Welling; *TBA*

10.00-10.30 Coffee

10.30-11.30 Arne Elofsson; *TBA*

11.30-12.30 Yoshiyuki Kabashima; *TBA*

12.30-14.00 Lunch

Session 10. Quantum and AI Chair Chair Magnus Boman

14.00-15.00 Pawel Horodecki; *TBA*

15.00-15.30 Coffee

15.30-17.00 Panel discussion.

Panelists: speakers of all days.

Moderator: Erik Aurell

17.00-19.00 Farewell cocktail

Prof. Edward K. Kirumira, STIAS Director

Prof. Hendrik Geyer, STIAS

Prof. Angelo Vulpiani, Chairman of the International Organizing Committee

Prof. Erik Aurell, convener

Prof. Francesco Petruccione

19.00-21.00 Closing Dinner, Venue TBC