



Deutscher Akademischer Austauschdienst
German Academic Exchange Service

ANNOUNCEMENT and CALL FOR APPLICATIONS **Summer School A-PIC 24: Probability, Information, Combinatorics (in Africa)**

August 12-23, 2024

African Institute for Mathematical Sciences (AIMS), Kigali, Rwanda

The school is intended for students and researchers interested in probability, information and combinatorics. We would like to give foundations for further study and theoretical research in these areas, as well as facilitate scientific exchanges between the participants.

Courses and lecturers

[Ryan O'Donnell](#), Carnegie Mellon University, Pittsburgh, USA

The Theory of Computation: Just as Theoretical Physics is the mathematical modeling and study of physical processes in our universe, Theoretical Computer Science is the mathematical study of all the *computational* processes in our universe. In this course we will describe the mathematical foundations of computing, starting from the mathematical formalization of computation and algorithms, and reaching to diverse topics such as Gödel's Incompleteness Theorem, the "P vs NP problem", theoretical cryptography, and quantum computation.

[Venkatesan Guruswami](#), University of California, Berkeley, USA

Error-correcting codes and algorithms

[Amin Coja-Oghlan](#), Technical University of Dortmund, Germany

The statistical mechanics of random combinatorial structures

Prerequisites

In general, the participants are expected to be familiar with pure mathematics at the undergraduate level. In particular, knowledge of basic combinatorics ('counting'), very elementary number theory, basic calculus (big-O and small-o notation), basic probability will be assumed. All courses will be held in English.

Eligibility

- Young researchers and students at the level of Master's studies, PhD studies and postdoc (up to 6 years after the PhD graduation) are eligible to apply.
- Full reimbursement is available to persons of African nationality or affiliated with an African academic institution. Non-African applicants are encouraged to contact the organizers to discuss financing.

Female candidates and candidates from less privileged regions or groups are especially encouraged to apply.

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Cost coverage

- Travel costs (flights and visas) will be covered, if applicable.
- Accommodation and stay in Kigali will be fully covered.

Application documents

The main selection criteria will be academic and research excellence in our areas of focus. Please submit the following documents:

- One paragraph statement outlining your motivation and the reason why you should be selected for **this particular school**.
- One reference letter is **highly advised**, especially for candidates without a PhD degree.
- Curriculum Vitae.
- University/AIMS transcripts for candidates without a PhD degree.
- Copy of passport or national ID.

Application instructions

Please send completed applications by email to jan.hazla@aims.ac.rw with subject line containing "DAAD A-PIC 24". Applicants should submit the documents in a **single PDF file**.

Deadline

The deadline for the applications is **April 30, 2024**.

For questions, please email jan.hazla@aims.ac.rw. **Please see the website https://www.uni-frankfurt.de/147012250/A_PIC_24 for other details and updates.**

DISCLAIMER: AIMS Rwanda and Goethe University reserve the right to disqualify ineligible, incomplete and/or inappropriate applications. AIMS also reserves the right to modify or cancel the application process or to extend the deadline for applications. Only successful applicants will be contacted.

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