

Advanced Physics Training and Collaboration with Africa (APhRICA)

Call for the 3rd Cohort - 2026-2028

Scope

APhRICA is a two-year training programme in condensed matter physics that combines 6 two-week intensive courses, in Rwanda and Kenya, together with online activities for the entire duration of the programme. The introduction to the theoretical frameworks of **density-functional theory** and **many-body perturbation theory** is completed by practical training on popular computer codes such as Quantum Espresso and YAMBO. Participants learn to simulate, analyse, and predict the electronic and optical properties of materials.

APhRICA is open to graduate students as well as faculty in Physics, Chemistry and Applied Mathematics. Participation of female students and faculty is strongly encouraged.

Participation in APhRICA is free of cost: travels and accommodation for the different activities are covered by the organization. Participants engage into advanced training activities for the entire duration of the programme.

APhRICA promotes international collaborations and networking activities. It aims to strengthen local capacity and mitigate brain drain.

Selection

APhRICA attracts top-level graduate students through a **rigorous selection** to carefully assess their initial knowledge and abilities.

Interested faculty are also **highly** advised to apply and participate. Selection will be based on shared interests and alignment with APhRICA goals.

Program

- **September 2026:** Selection of participants
- **December 2026 & March 2027 (EAIFR):** Quantum mechanics: basic + advanced
- **June 2027 (TuK):** Fundamentals of Density Functional Theory (DFT)
- **December 2027 & March 2028 (EAIFR):** Many-Body Perturbation Theory (MBPT): basic + advanced
- **June 2028 (TuK):** Computational aspects of DFT and MBPT with the [YAMBO](#) code.

Topics

- Mathematical methods for theoretical and computational physics and engineering;
- Computational methods for electronic and optical properties of materials.
- Theoretical and applied physics for computational materials design.

Expected Outcomes

- Training the next generation of African researchers in condensed matter physics, computational materials science and applied mathematics.
- Increased networking of researchers in East Africa and enhanced connections with Europe.
- Possibility for the participating institutions to improve the curricula in Physics and Mathematics and to develop institutional MoUs for the exchange of students/faculty.

Organisers

Prof. George Amolo, Technical University of Kenya, Kenya.
Dr. Michael Atambo, Technical University of Kenya, Kenya.
Dr. Gladys King'ori, Technical University of Kenya, Kenya.
Dr. Matteo Gatti, CNRS and Ecole Polytechnique, France.
Dr. Korir Kiprono, Moi University, Kenya.
Dr. Andrea Marini, CNR, Italy.
Prof. Catherine Meriaux, ICTP-EAIFR, Rwanda.
Dr. Victor Odari, Masinde Muliro University of Science and Technology, Kenya.

For enquiries reach out to the organisers:
aphrica@tukenya.ac.ke

<https://forms.gle/wyz2yW84vSuvWt549>

Deadline August 15th 2026

HOW TO APPLY →

