The Abdus Salam
International Centre for Theoretical Physics

IAEA
International Atomic Energy Agency

unesco
United Nations
Educational, Scientific
and Cultural Organization

2026 School on Arithmetic, Geometry and Algorithms

Coordinated by
AAU-AMU-CIMPA-CoRE-Math-ICTP-ISP

DESCRIPTION:

The topics of this school are arithmetic and algebraic geometry, with a view toward applications, computational aspects and modern algorithms.

MORE INFORMATION:

Arithmetic and algebraic geometry are classical topics, yet highly active fields in pure mathematics which recently have found practical applications, for instance in cryptography and coding theory. The school will give an accessible introduction to various foundational topics in arithmetic and algebraic geometry, including basics of commutative algebra, the language of modern algebraic geometry.
Moreover, we will highlight computational aspects and introduce the students to the usage of computer algebra. This is an indispensable tool for research in arithmetic and algebraic geometry, as well as for practical applications.

TOPICS:

- Algebraic Varieties
- Commutative Algebra
- Elliptic Curves
- Algebraic Number Theory
- Finite Fields
- Applications of Arithmetic and Algebraic Geometry in Cryptography
- Computer Algebra

SPEAKERS:

Introductory Commutative Algebra
S. Nakato, Kabale University, Uganda
Introductory Algebraic Geometry
S. Gammelgaard, University of Milan, Italy
Algebraic Number Theory, Finite Fields and RSA Cryptography
A. El-Guindy, Cairo University, Egypt
Elliptic Curves I: Geometry and Arithmetic
D. Festi, University of Naples Federico II, Italy
Elliptic Curves II: Elliptic Curves over Finite Fields and Applications to Cryptography
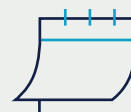J. Duque-Rosero, Boston University, USA
Additional talks by
B. Bekele, Addis Ababa University, Ethiopia
A. Fufa Samuel Asefa, Addis Ababa University, Ethiopia
T. Abebaw, Addis Ababa University, Ethiopia
D. Kifle, Dilla University, Ethiopia

17 - 28 August 2026

Addis Ababa University, Ethiopia

Deadline:
1 April 2026

DIRECTORS:

A. Fufa Samuel Asefa, Addis Ababa University, Ethiopia
B. Szendroi, University of Vienna, Austria
B. Turesson, Uppsala University, Sweden
B. Bekele, Addis Ababa University, Ethiopia
D. Martinelli, University of Amsterdam, Netherlands
E. Carneiro, ICTP, Italy
M. Mango John, Makerere University, Uganda
S. Muller, University of Groningen, Netherlands
T. Abebaw, Addis Ababa University, Ethiopia

ICTP SCIENTIFIC CONTACTS:

A. Marian, ICTP, Italy
E. Carneiro, ICTP, Italy

FURTHER INFORMATION:

E-mail: smr4199@ictp.it

Web: https://indico.ictp.it/event/11125/

Female scientists are encouraged to apply.

GRANTS:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries.
There is no registration fee.