Mini-Courses on Computational Algebraic Geometry

15:30-17:30,
Every Wednesday,
May 24- June 14, 2023

Room 515,
Cosmology Building, NTU

Speaker

Christopher Peterson
Colorado State University

Organizer

Jungkai Chen
National Taiwan University & NCTS

Course Background & Purposes

Give a broad overview of selected topics in computational and applied aspects of Algebra, Geometry, and Topology. This includes the fundamental computational tools of Gröbner bases, Homotopy Continuation, Persistent Homology. We will also discuss basic algorithms/ computations on Grassmann, Flag, and Stiefel manifolds.

Course Outline & Descriptions

Theme 1
Grobner Bases and Symbolic Computation: Theory, algorithms, and applications.

Theme 2
Homotopy Continuation and Numeric Computation: Theory, algorithms, and applications.

Theme 3
Real Algebraic Geometry and Probabilistic Computation: Theory, algorithms, and applications.

Theme 4
Grassmann, Flag, and Steifel Manifolds: Theory, algorithms, and applications.

Theme 5
Persistent Homology: Theory, algorithms, and applications.

Registration