UNIC Mathematics Summer School 2026

ŁÓDŹ – THE CITY OF FOUR CULTURES, AN ACADEMIC HUB AND A PLACE OF CULTURAL FESTIVALS

IN THE PROGRAMME:

LIE GROUPS
AN INTRODUCTION TO THE BASIC CONCEPTS OF LIE GROUPS, AS SYMMETRY GROUPS IN GEOMETRY AND DIFFERENTIAL EQUATIONS, EXPLORING EXAMPLES USING ELEMENTARY LINEAR ALGEBRA AND SEVERAL VARIABLE CALCULUS.

FINITE QUANTUM GROUPS
A FINITE QUANTUM GROUP, DEFINED USING HOPF *-ALGEBRAS, IS A GENERALISATION OF A FINITE GROUP. AN INTERESTING FEATURE OF QUANTUM GROUPS IS THEIR DUALITY, WHICH IS CONNECTED TO THE FOURIER TRANSFORM.

SPECTRAL GRAPH THEORY
EXPLORE THE BEAUTIFUL FUSION OF ANALYSIS, COMBINATORICS, AND ALGEBRA THAT FORMS SPECTRAL GRAPH THEORY, WHERE THE SPECTRA OF OPERATORS SERVE AS A UNIFYING LENS TO DECODE THE INTRINSIC GEOMETRY AND DEEPEST COMBINATORIAL PROPERTIES OF GRAPHS.

C*- ALGEBRAS
MOTIVATED BY THE ELEGANT AXIOMATIZATION OF QUANTUM OBSERVABLES, C*-ALGEBRAS OFFER A BRIDGE BETWEEN ABSTRACT ALGEBRA AND MODERN PHYSICS. IT WILL BE SHOWN HOW 1930s IDEAS STILL INFLUENCE MODERN MATHEMATICS.

9-10 June, 16-17 June - VIRTUAL LECTURES
21-28 June - LECTURES AND DISCUSSIONS ON-SITE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE UNIVERSITY OF ŁÓDZ
SOCIAL EVENTS AND A CITY TOUR.

JOIN US IN ŁÓDŹ AND EARN 5 ECTS CREDITS.

SUMMER SCHOOL 2024

SUMMER SCHOOL 2025

CONTACT: INTERNATIONAL RELATIONS OFFICE

ORGANIZERS:
KOÇ UNIVERSITY, UNIVERSITY COLLEGE CORK, UNIVERSITY OF LODZ, UNIVERSITY OF OULU, UNIVERSITY OF ZAGREB.

KOÇ UNIVERSITY

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh — UCC

UNIWERSYTET ŁÓDZKI

UNIVERSITY OF OULU

University of Zagreb