THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

COLLOQUIUM

Pair arithmetical equivalence for quadratic fields

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Abstract

Given two nonisomorphic number fields K and M, and two finite order Hecke characters χ of K and η of M respectively, we say that the pairs (χ, K) and (η, M) are arithmetically equivalent if the associated L-functions coincide: $L(s, \chi, K) = L(s, \eta, M)$. When the characters are trivial, this reduces to the question of fields with the same Dedekind zeta function, investigated by Gassmann in 1926, who found such fields of degree 180, and by Perlis in 1977 and others, who showed that there are no arithmetically equivalent fields of degree less than 7.

In this talk we discuss arithmetically equivalent pairs where the fields are quadratic. They give rise to dihedral automorphic forms induced from characters of different quadratic fields. We characterize when a given pair is arithmetically equivalent to another pair, explicitly construct such pairs for infinitely many quadratic extensions with odd class number, and classify such characters of order 2.

This is a joint work with Zeev Rudnick.

Date:	April 28, 2021 (Wednesday)
Time:	9:00 – 10:00 am (Hong Kong Time)
Venue:	ZOOM: https://hku.zoom.us/j/
	Meeting ID: 987 2318 8509

All are welcome