CDMS Research Seminar

Mathematical aspects of reconstructing evolution

Wednesday, 11th May 2022, 11:00 am

https://uws.zoom.us/j/81540067514?pwd=dndxZytYQWlTaFJBbFNWbVNVMko3Zz09

Speaker: Distinguished Professor Mike Steel, University of Canterbury, Aotearoa New Zealand

Abstract: Biologists employ a variety of methods for converting genomic data into trees and networks that describe the evolutionary relationships between organisms. These 'phylogenies' range across a wide range of time scales and taxonomic ranks. The justification of phylogenetic reconstruction methods depends ultimately on a mathematical foundation that intersects several fields: combinatorics, topology, algebra, and probability theory. In this talk, I highlight some key mathematical concepts and results that underlie phylogeny reconstruction, with an emphasis on various recent findings.

Bio: Mike Steel directs the Biomathematics Research Centre, and is a Distinguished Professor in the School of Mathematics and Statistics of University of Canterbury, Christchurch, Aotearoa New Zealand. He is an elected fellow of the Royal Society of New Zealand, an elected fellow of the International Society for Computational Biology (ISCB), and is on the editorial board of Journal of Mathematical Biology (Feb 2019-) and Bulletin of Mathematical Biology. His research interests are in discrete mathematics and probability theory, and applications to biological processes, particularly evolution, origin of life, cognitive science, and biodiversity conservation.

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