

THE UNIVERSITY



OF HONG KONG

*Institute of Mathematical Research  
Department of Mathematics*

# WORKING SEMINAR

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November 22, 2018 (Thursday), 2:30 – 3:30pm

Rm 210, Run Run Shaw Building, HKU

## Maxwell's demons from old age to conception

### Abstract

Biological processes develop in a crowded environment. Maintaining accurate recognition is a challenge. In particular no organism can escape ageing, where many of its components are progressively altered. How does the cell recognise young from aged or altered entity? We explore the way concrete Maxwell's demons can recognise compounds that they must take care of. This implies memorising their properties and resetting the memory after interaction. This is at the expense of energy. Examples of cell cleaning, identification of proper substrates in an ocean of mimics as well as management of accuracy during gene expression are discussed with concrete examples. The outcome has ethical consequences: the progeny must result from preserving gametes from ageing, and social practices should confirm to this constraint if we think of escaping a dire future."

*All are welcome*