

Prof. Tanniemola Liverpool

(Professor of Theoretical Physics,
University of Bristol)

‘Mathematics, Physics, Biology and the 2nd law of Thermodynamics’

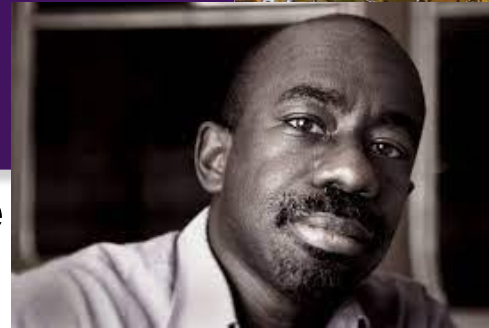
**Monday 12th December 2022, 3pm, Berry
Lecture Theatre**

I will discuss some recent work looking quantitatively at the process of wound healing using ideas from thermodynamics and statistical mechanics. Wound healing is a highly conserved process required for survival of an animal after tissue damage. The wound repair process is not only of great interest in its own right but is also a laboratory to study complex tissue dynamics and regeneration.

Many wounds involve damage to an epithelial (barrier) tissue (like skin) that separates different regions of the body of a living organism. I will describe some recent work on studying wound healing in two dimensional epithelial tissues of a fruit fly pupal wing. This epithelium was chosen because it is transparent and accessible to sophisticated imaging techniques. We use live confocal time-lapse microscopy to follow the behaviour of cells in a tissue before and after wounding.

I will focus on three cell-behaviours that are generally accepted to contribute to wound re-epithelialisation : cell shape deformation, cell division, and cell migration. I will describe how we are beginning to use a combination of theory and experiment to disentangle some of the organising principles behind the complex orchestrated dynamics that lead to wound healing.

The Colloquia will be followed by tea and coffee in the staff common room.
For further details please contact phys-exec-office@bristol.ac.uk



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PHYSICS



Physics Colloquium – Autumn Term