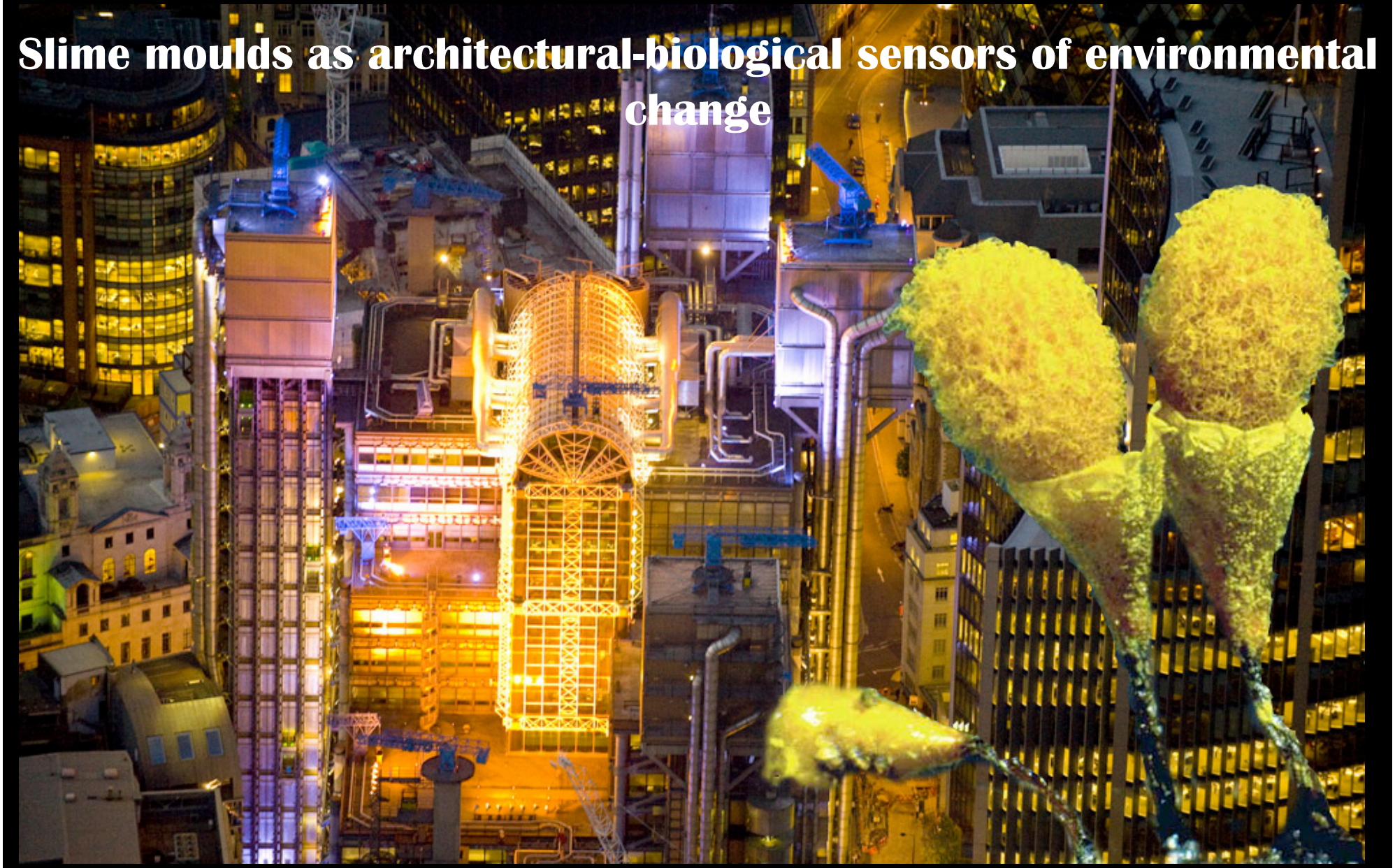
Slime moulds as architectural-biological sensors of environmental change



Co-investigators:

Dr Sylvia Nagl, Head of Complex Systems Science, Cancer Institute

Dr Rachel Armstrong, Researcher, AVATAR Group, Bartlett School of Architecture

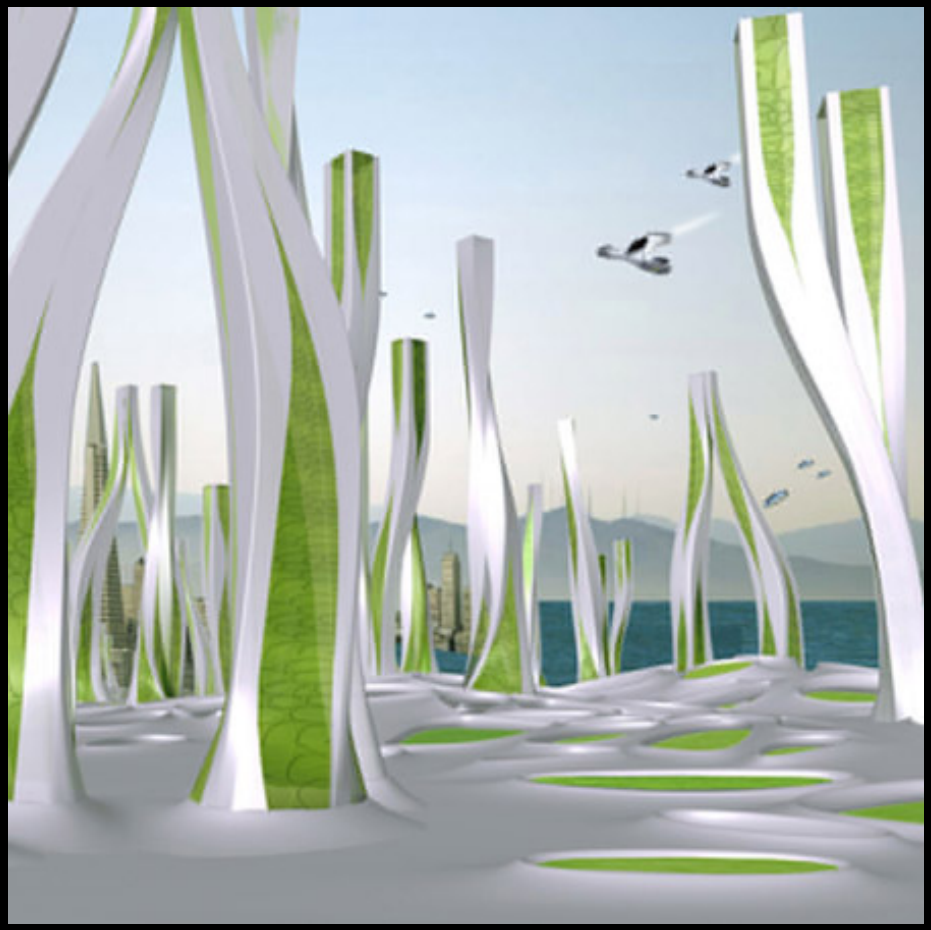
In collaboration with

Dr Klaus-Peter Zauner, Science and Engineering of Natural Systems, School of Electronics and Computer Science, University of Southampton

“Designers who embrace concepts of emergence, self-organisation and self-assembly, increasingly sound like biologists”

William Mitchell, *ME* ++ (2003)

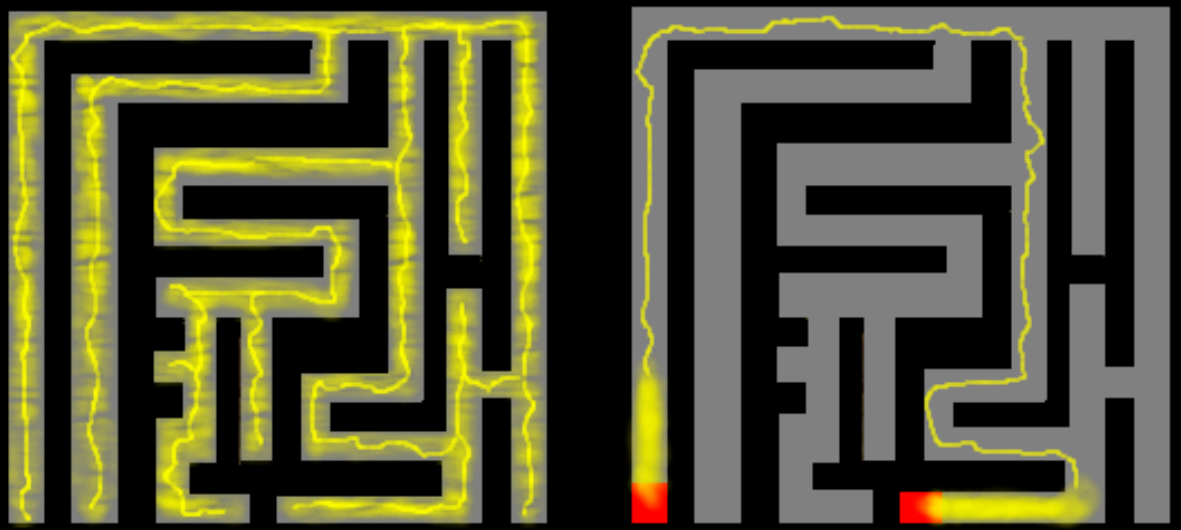
Bio-engineers and systems biologists who are situated within the paradigm of complexity from which these concepts originate, come across as a new breed of designers



semi-biotic systems animate-artificial

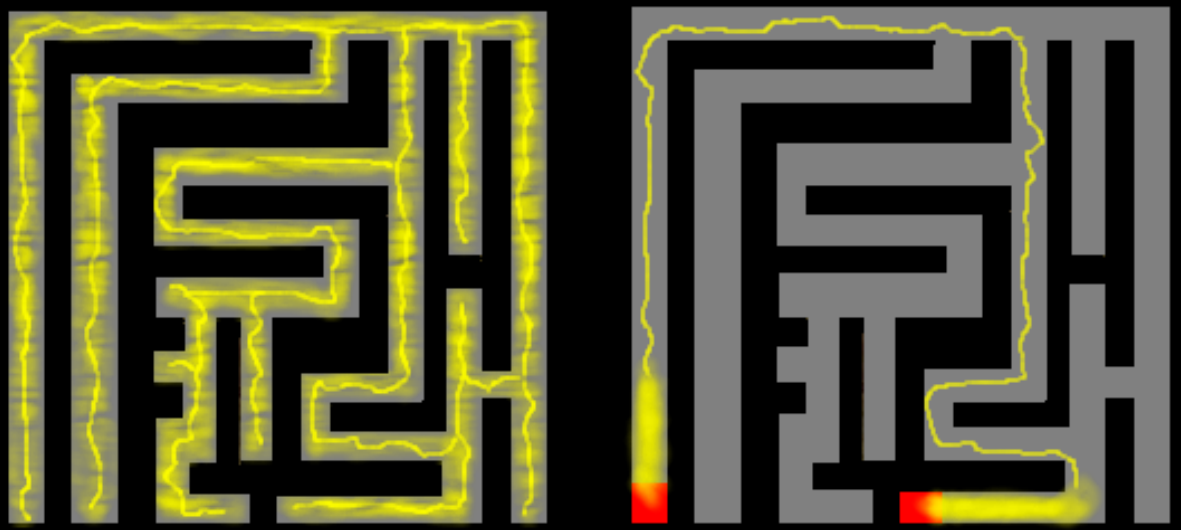
sustainable cities

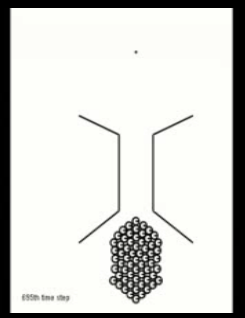
Mindless creatures acting ‘mindfully’



Nakagaki et al. (2000). "Intelligence: Maze-solving by an amoeboid organism". *Nature* **407**: 470.

Mindless creatures acting ‘mindfully’





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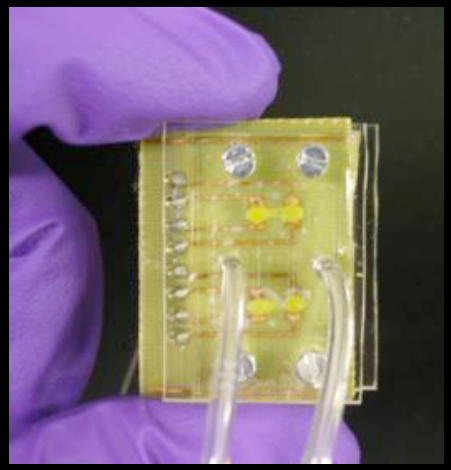
Mindless creatures acting ‘mindfully’

“The sharp boundary separating the animate from the inanimate world is about to blur with the advent of engineered systems that incorporate functional biological components such as molecules, cells and tissues.”

Klaus-Peter Zauner



physarum biosensor chip

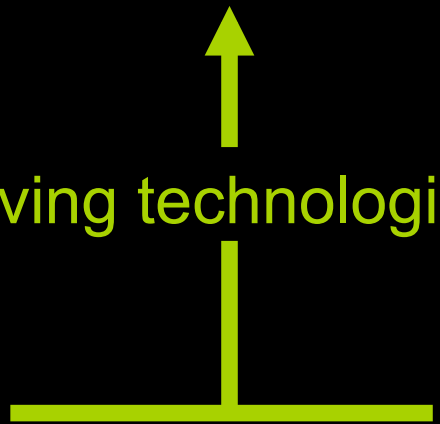
monitoring system for the cell's reactions to external signals

- interface device using electrical impedance spectroscopy (EIS) to access the molecular computing processes

- the slime mould, *Physaurm polycephalum*, is interfaced to the EIS hardware, together with the microfluidic system

flows of information between architecture and biosphere

information processing



living technologies

systems/synthetic biology

cellular automata
agent-based modelling

architectural-biological sensors of environmental change