



# EPSRC and Complexity Science

Complexity-NET

Outreach workshop,

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EPSRC

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# What we do

- EPSRC is the **main UK government agency** for funding research and training in engineering and the physical sciences
- EPSRC invests around **£850m** a year in world class research and training to promote future economic development and improved quality of life
- EPSRC is key to tackling challenges such as **energy security, climate change, our ageing population, crime and economic resilience**
- EPSRC is generating the **fundamental knowledge** and **skilled people** essential to business, government and other research organisations

# How we see the future

## ■ Delivering impact

- Excellent research and talented people to deliver maximum impact for health, prosperity and sustainability of the UK

## ■ Shaping capability

- Shape the research portfolio in terms of both excellence in research and a focus on strategic need

## ■ Developing leaders

- Greater support to world-leading individuals as well as supporting the next generation of leaders





# Cross-disciplinary Interfaces Programme

- Nurture emerging cross-disciplinary areas of research and established interfaces where intervention is needed
- Facilitate cross-disciplinary working in universities, leading structural and cultural change
- Support the next generation of cross-disciplinary researchers
- Complexity science is one of our thematic priorities

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# EPSRC's Complexity Science Strategy I

## Laying the Foundations

- Complexity taught training courses
  - Skills to address emerging research problems in complexity science and complex systems
- Doctoral training centres
  - Multidisciplinary, cohort-based postgraduate training
  - Warwick, Bristol, Southampton
- Fundamentals of complexity science
  - Research projects
- Pilot call through Complexity-NET
  - “Best with best” collaborations across ERA

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# EPSRC's Complexity Science Strategy II

## Tackling Societal Challenges

**Developing and applying the tools and techniques of Complexity Science to tackle challenges in real-world complex systems:**

■ Energy challenges for complexity sciences (2008) – two research communities coming together (£4M investment)

■ Complexity science for the real world (2009) – large-scale, ambitious programmes of research (£11M investment, 4 multidisciplinary programmes)

**Prof. Fieldhouse, Manchester**  
**Social complexity of immigration and diversity**

**Prof. Gilbert, Surrey**  
**Evolution and resilience of industrial ecosystems**

**Prof. Falkingham, Southampton**  
**Health & social care needs of an ageing society**

**Prof. Wilson, UCL**  
**Explaining, modelling and forecasting global dynamics**

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# Directions over the next four years

- Strengthening national and international collaboration around centres of excellence
- Accelerating the pace of cultural and structural change in the conduct & support of multidisciplinary research
- Shape the future EPSRC portfolio: retaining and strengthening core capabilities to be in a position to meet challenges not yet known
- Focus on major societal challenges: energy, climate change, demographic change, global food security, global uncertainties, *manufacturing the future*

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BUT DO YOU REALLY WANT TO CHANGE?



*Janice*

HOW DO WE CHANGE THE WORLD?

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# Why a Cross-disciplinary Interfaces programme?



***“Interdisciplinary research can be one of the most productive and inspiring of human pursuits”***

**Facilitating Interdisciplinary Research  
National Academy of Sciences 2005**

## EPSRC Interest

- Insight-led, contributing to knowledge and innovation
- Challenge-led, providing solutions to problems

