Healthcare Technology Workshop

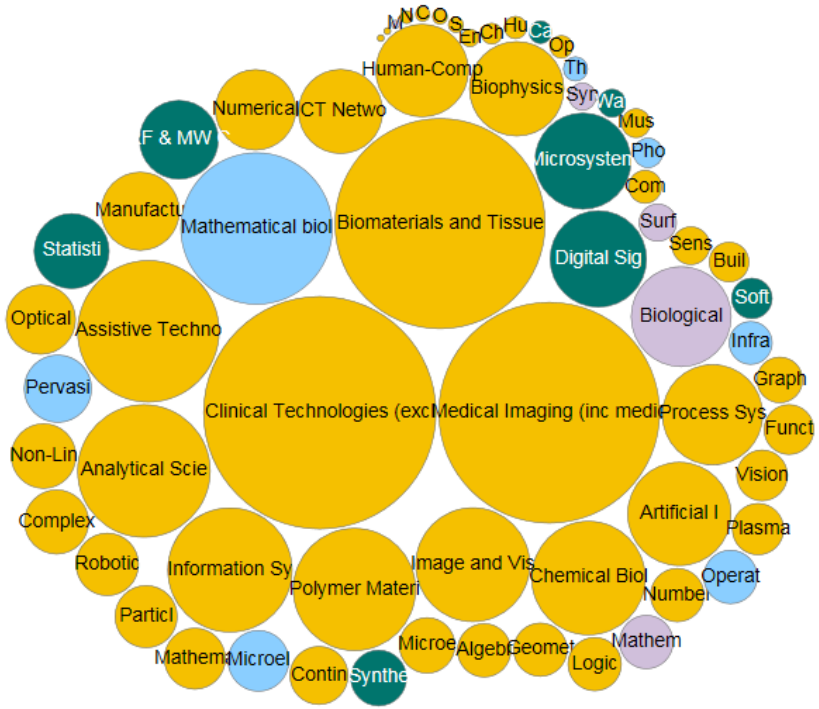
‘Diagnostic Sensor Technology’

Dr John Hedley
School of Mechanical and Systems Engineering

Dr Phil Manning
Institute of Cellular Medicine

Diagnostic Sensor Technology: National and international landscape

- EPSRC - Healthcare technologies
- Predominantly Clinical Technologies, 97 grants worth £47M
- Newcastle involvement
  - NCL lead: Accurate blood pressure measurement: £300K
  - Co-I: IRC in Early-Warning Sensing Systems for Infectious Diseases £11M
  - Co-I: Centre for Innovative Manufacturing in Medical Devices £5.6M
- Previously field has been predominantly lab based research due to reproducibility issue, commercial systems being benchtop
- Starting to see POC systems becoming commercial available, i.e. OJ-Bio, Nanopore



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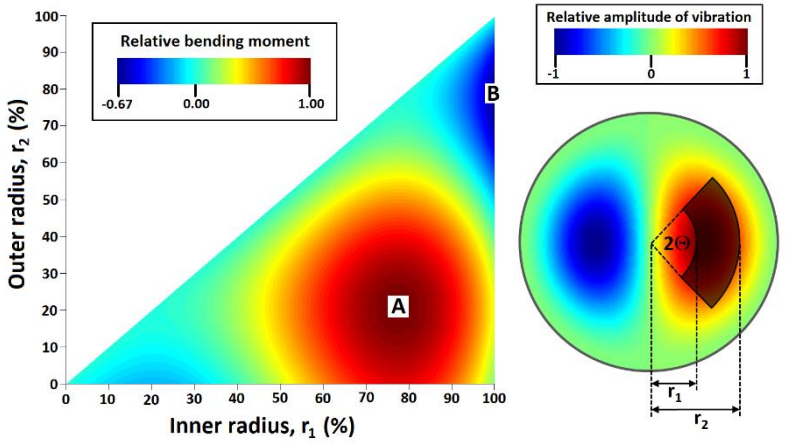
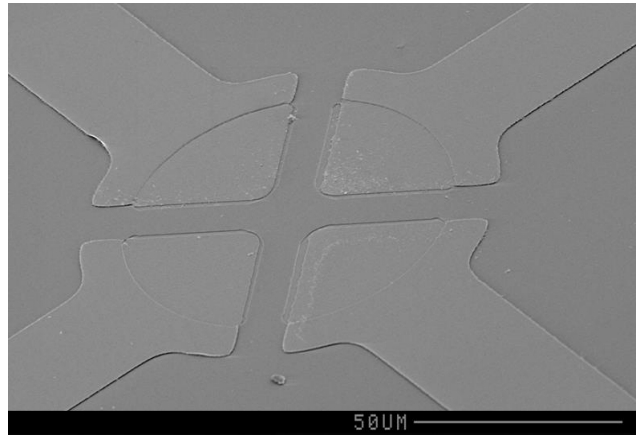
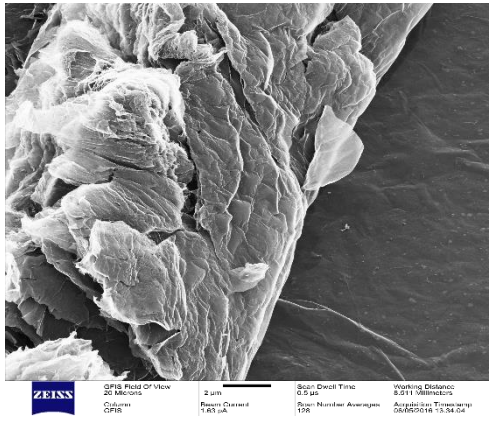
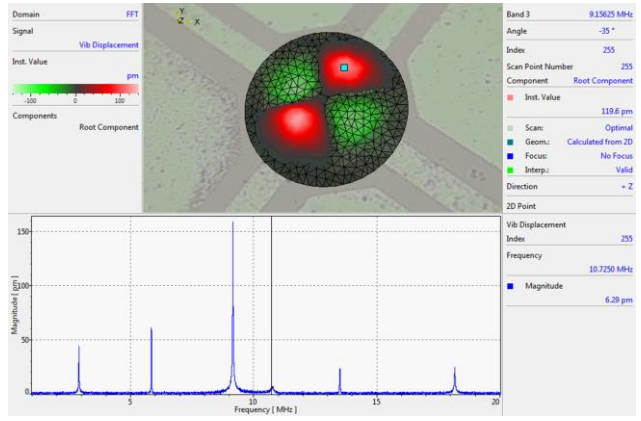
Diagnostic Sensor Technology: Current strengths, Newcastle groups

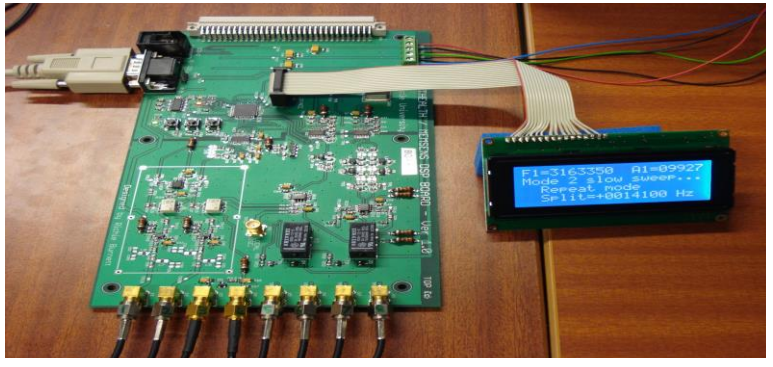
- Design
  - Fluorescence / imaging
  - Impedance / electrochemical
  - Resonant
  - SAW
- Microfabrication
  - In house (developmental work needed)
  - Subcontract (Tronics, Lionix)
  - Rapid prototype (larger scale geometries)
- Characterisation
  - Surface analysis (XPS, He ion, etc)
  - Dynamic characterisation (vibrometry, etc)
- Systems development
  - Electronics











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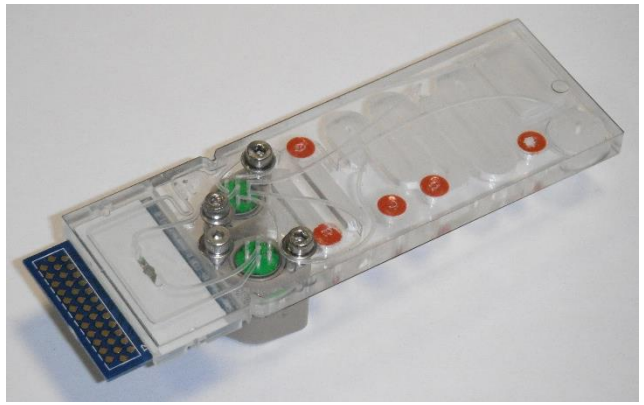
Diagnostic Sensor Technology: Future Research Opportunities

- Point of care diagnostics continues to be a priority
  - NCL strength in multidisciplinary research
- EPSRC predominant funder for device development aspects
  - European Commission funding?



- Collaborators:
  - Microfluidics
  - Packaging
  - IMEMS

- Impact:
  - Microfabrication costs make commercial development prohibitive (c.f. Nanopore, OJ-Bio)
  - Simplicity of sensor fabrication → small scale production (CPI, Tohuko)

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