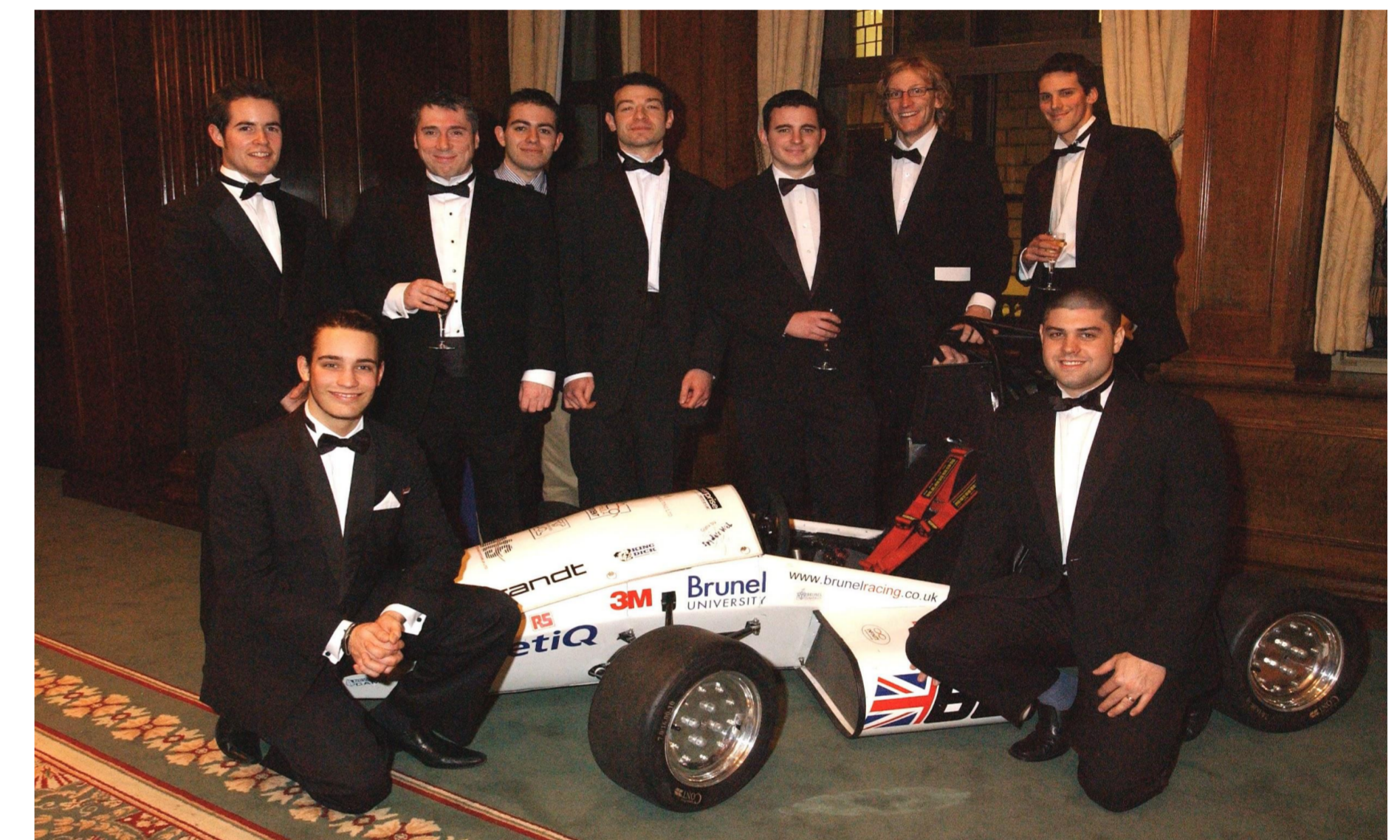


Welcome to BRUNEL UNIVERSITY



Brunel
UNIVERSITY
WEST LONDON

BRUNEL UNIVERSITY

OUR HISTORY

- ◆ Established as Brunel University in 1966
- ◆ Named 'Brunel University' after the 19th century engineer 'I K Brunel'
- ◆ Excellent teaching & research links with industry, commerce & the professions
- ◆ Outstanding graduate employment record



Brunel University – our scope and scale

- ◆ £250 million investment in the Uxbridge campus
- ◆ £14 m investment in research staff in last three years
- ◆ 13,000 students
- ◆ 2,000 Staff
- ◆ World Class research in Engineering, Law, IT, Mathematics and Sociology

School of Engineering and Design

Vision

'To be a leading provider of educational and research programmes that lead to sustainable technological innovation and wealth creation'

Distinctive, innovative, outward looking

Staff and Students

One of the Largest Engineering Schools in the UK

- 120 academic staff
- 150 support and research staff
- 1650 FTE undergraduate students
- 500 FTE students on PGT programmes
- 240 FTE research students

Subject Areas

- Design

- Product Design
- Industrial Design
- Design Management

- Electronic and Computer Engineering

- Electrical and Electronic Engineering
- Multimedia Technology and Broadcast Media
- Communications
- Energy and Power System

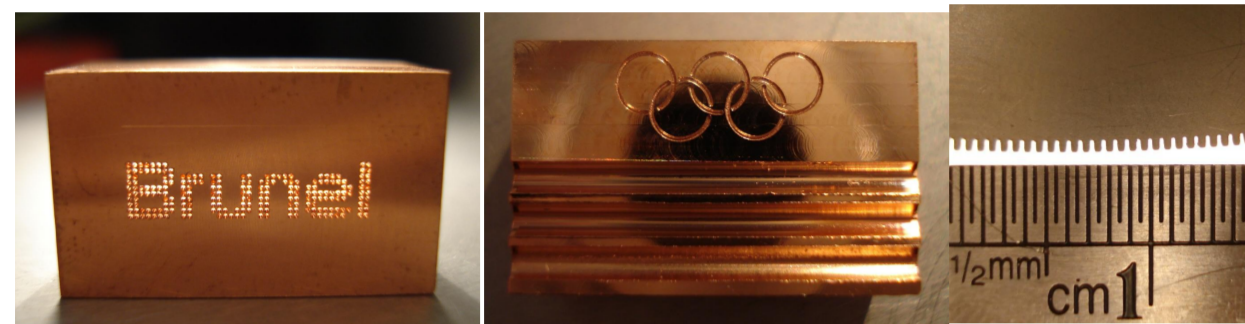
Subject Areas

- Mechanical Engineering (Prof. Tadeusz Stolarski)
 - Mechanical Engineering
 - Automotive and Motorsport
 - Aeronautics and Aerospace
- Civil Engineering with Sustainability
- Advanced Manufacturing and Enterprise Engineering (Prof. Kai Cheng)
 - Engineering Management
 - Advanced Manufacturing Systems
 - Advanced Engineering Design, Packaging Technology

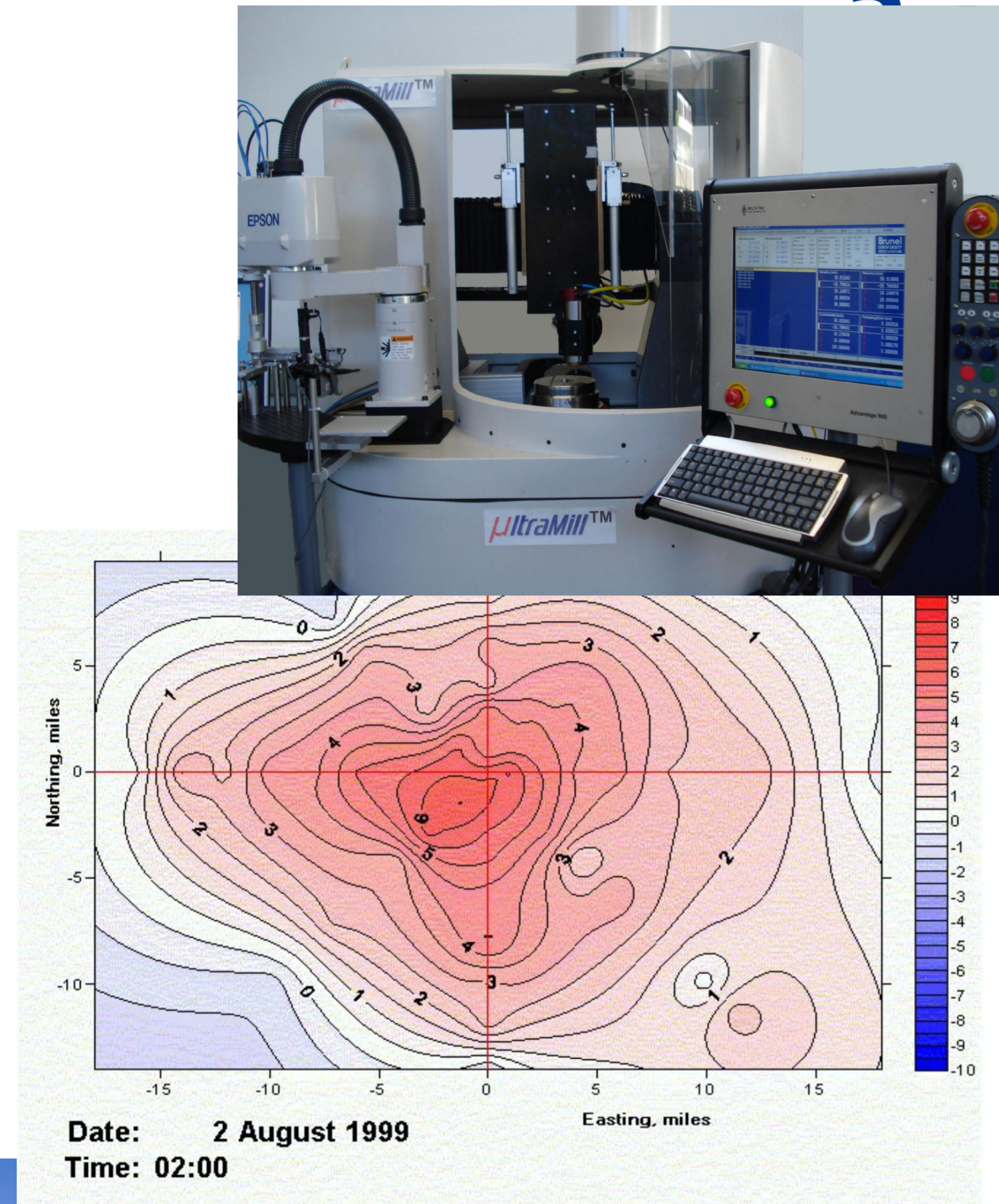
Research

**Rated 2.55 in 2008 RAE in General Eng. and Mechanical & Manufacturing Eng.
5th in the UK**

Advanced manufacturing
and Engineering design



Energy and
environmental
engineering

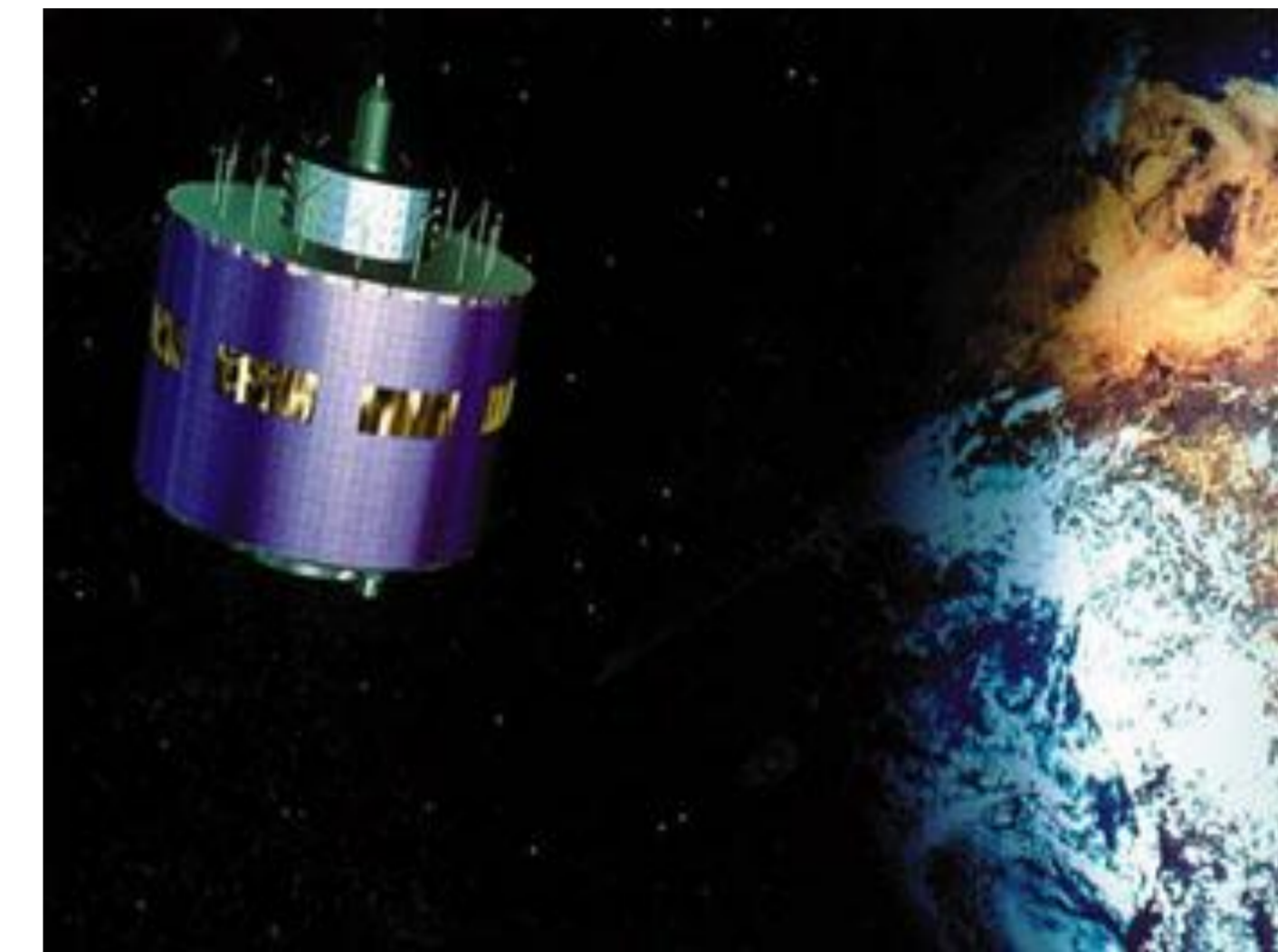


Structures and
computational
mechanics



Advanced polymeric
and metallic
materials

Human Centred and
environmentally
sensitive design

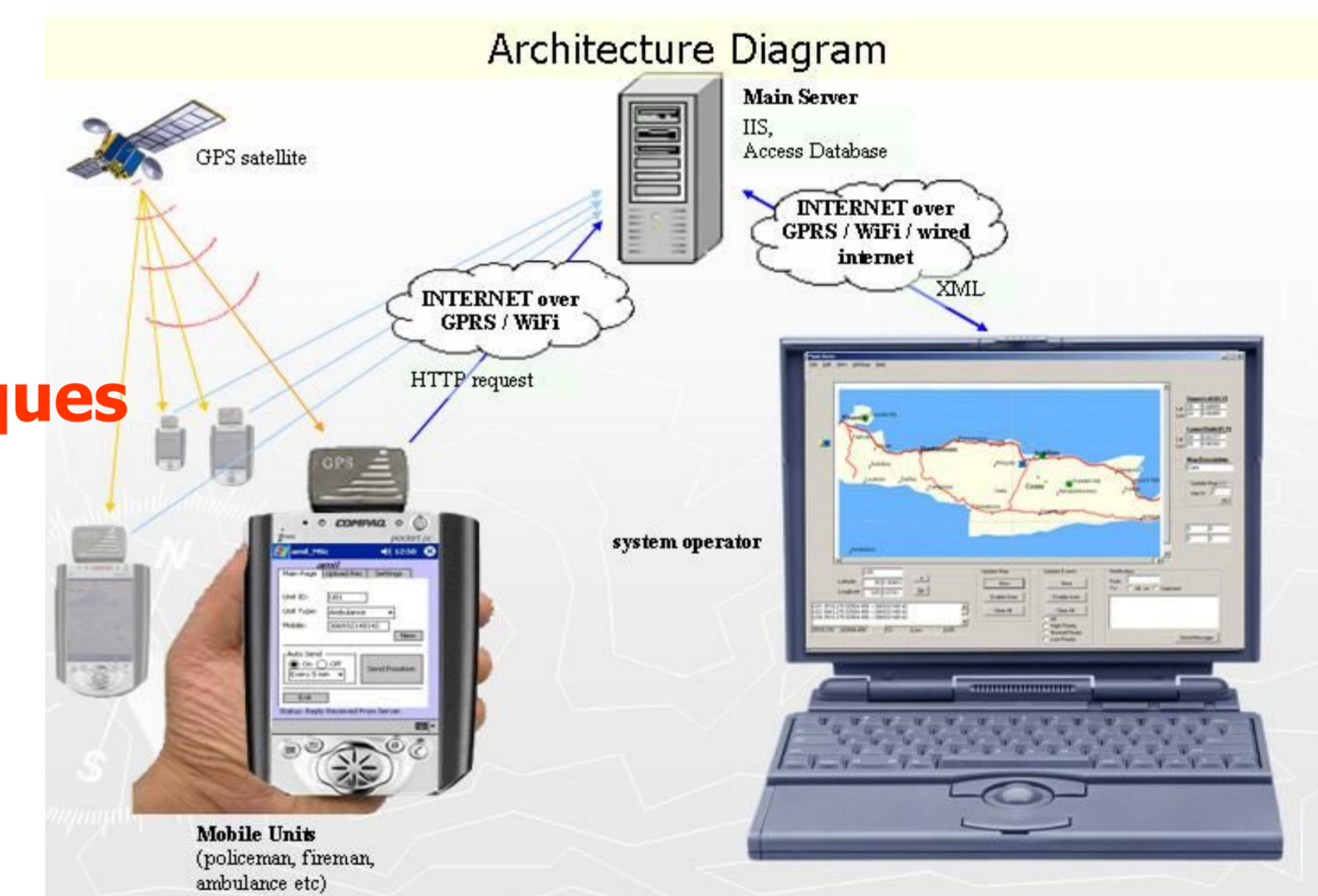


Centre for Electronic
Imaging – Space sensors
and Instrumentation

Networks and
communications

Systems Engineering Research Group

**Sensors/Actuator, SCADA, Systems
Modelling, Bio Engineering, Novel Techniques
In Tacking and Traceability**



Power systems
and control

Internal combustion
Engines and transmission

Research at AMEE

- **Research Themes:**

- *Advanced Manufacturing Technology*
- *Enterprise Engineering*
- *Engineering Management*

- **Research Laboratories**

- *Advanced Manufacturing Technology Lab*
- *Enterprise Engineering and Systems Lab*
- *CAD/CAM Lab*

- **Research Expertises:**

- *Micro/Nano Manufacturing*
- *Bench-top Micro Machines*
- *Micro Metrology*
- *Condition Monitoring & Control*
- *Systems Modelling and Simulation*
- *Global Manufacturing*
- *CAD/CAM and Digital Manufacturing*
- *Nano Positioning and Manipulation*
- *Digital Enterprise Technology*
- *Agile Manufacturing*
- *Supply Chains Management*
- *Technology and Innovation Management*
- *Packaging Technology*
- *Engineering Design*

Examples

- [E-Track](#) (A. Mousavi – Applied Control, Computing, and OR)
- [Micro/Nano Manufacturing - 'Brunel' Approach](#) (K. Cheng)
- [LifePass](#) (H. Makatsoris): Autonomous Robots
- Supply Chain Orientation (SCO) in manufacturing SME's (S. Grant)
- A Multilingual Blended Learning Platform for SME's Logistics Management' involving five EU partners (2 universities, 2 private SME's and a European employer's confederation) with the aim of developing and testing a blended learning VET system for logistics management.

E-Track

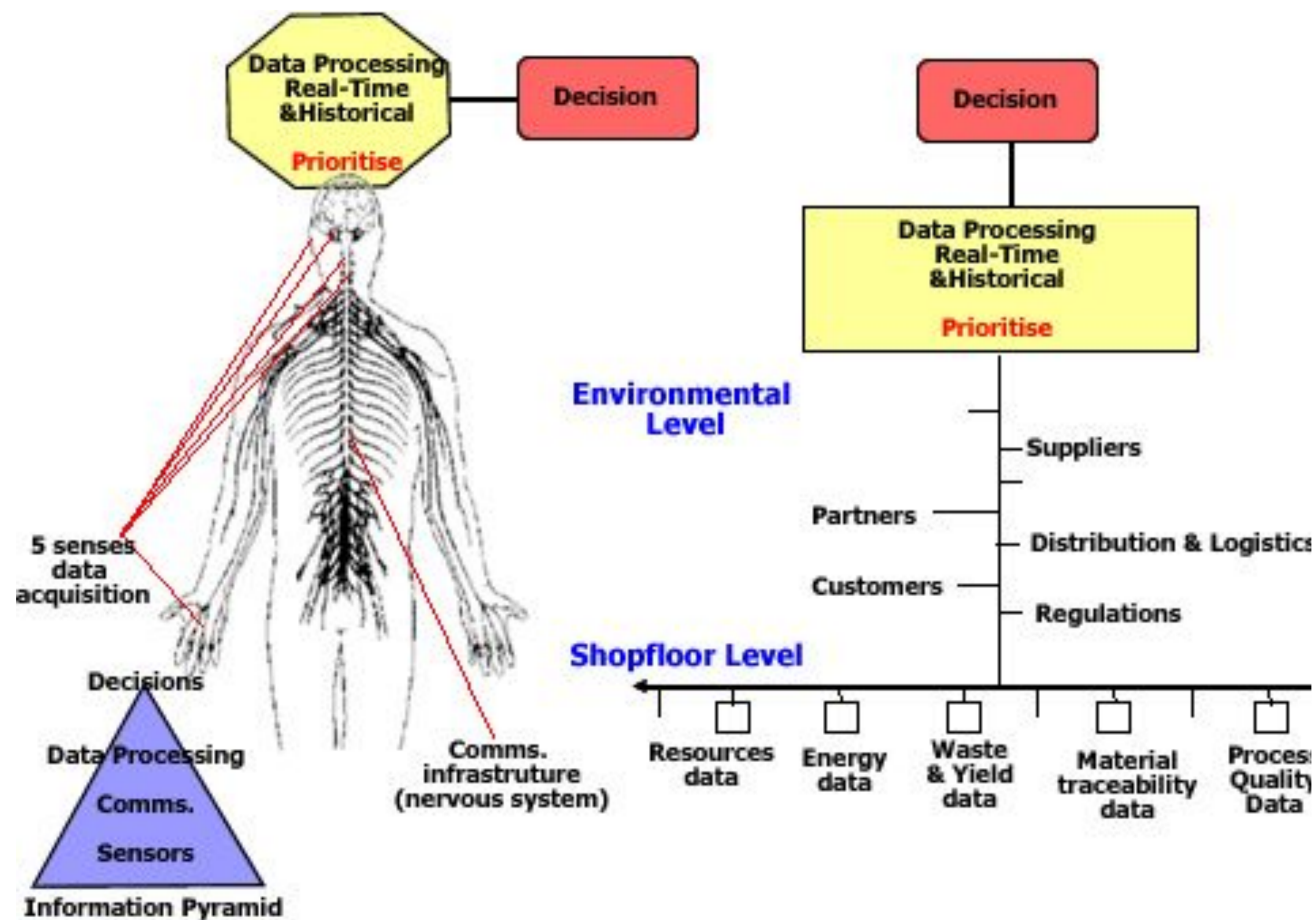


Figure 1: The cross comparison between our and that of a manufacturing decision system

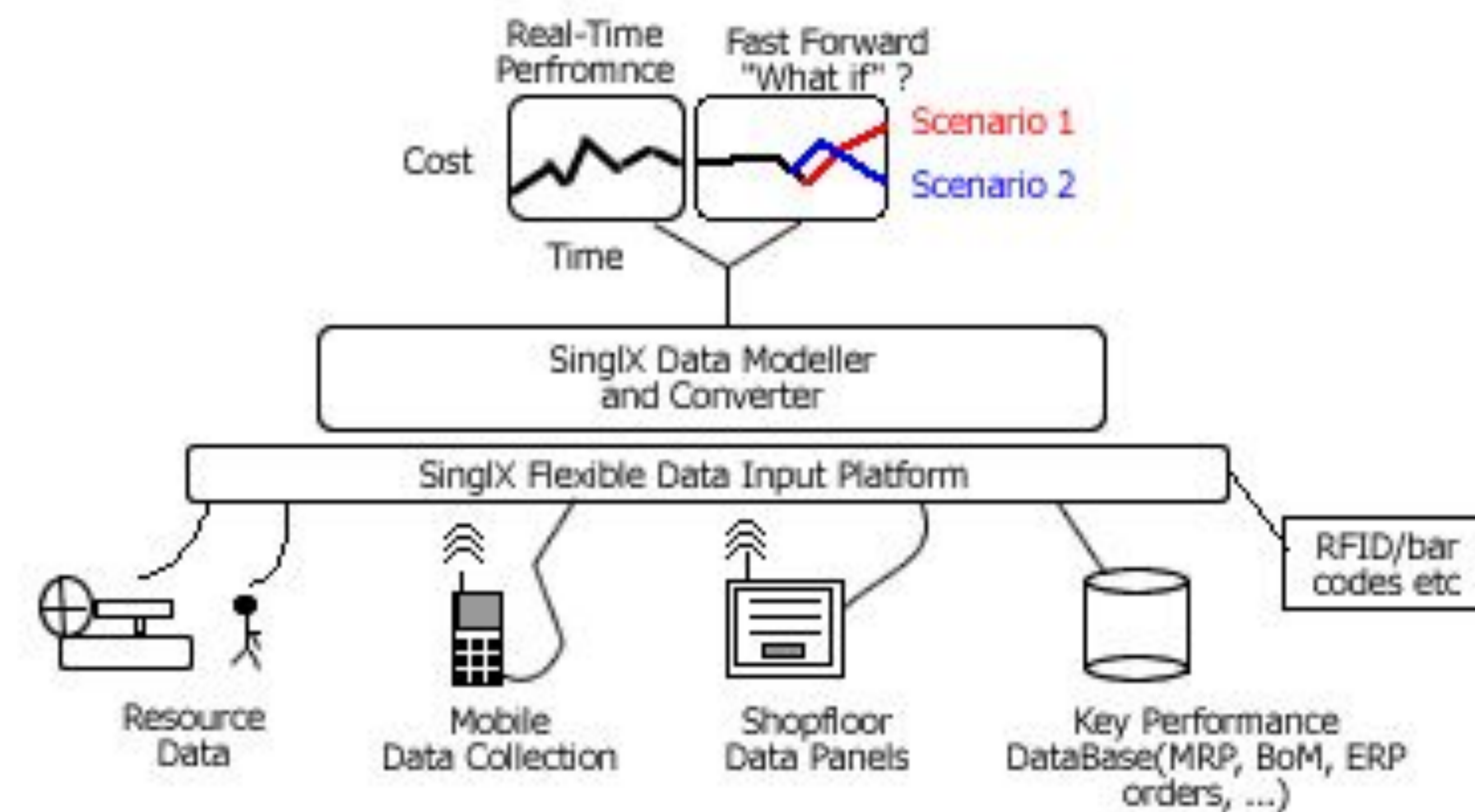
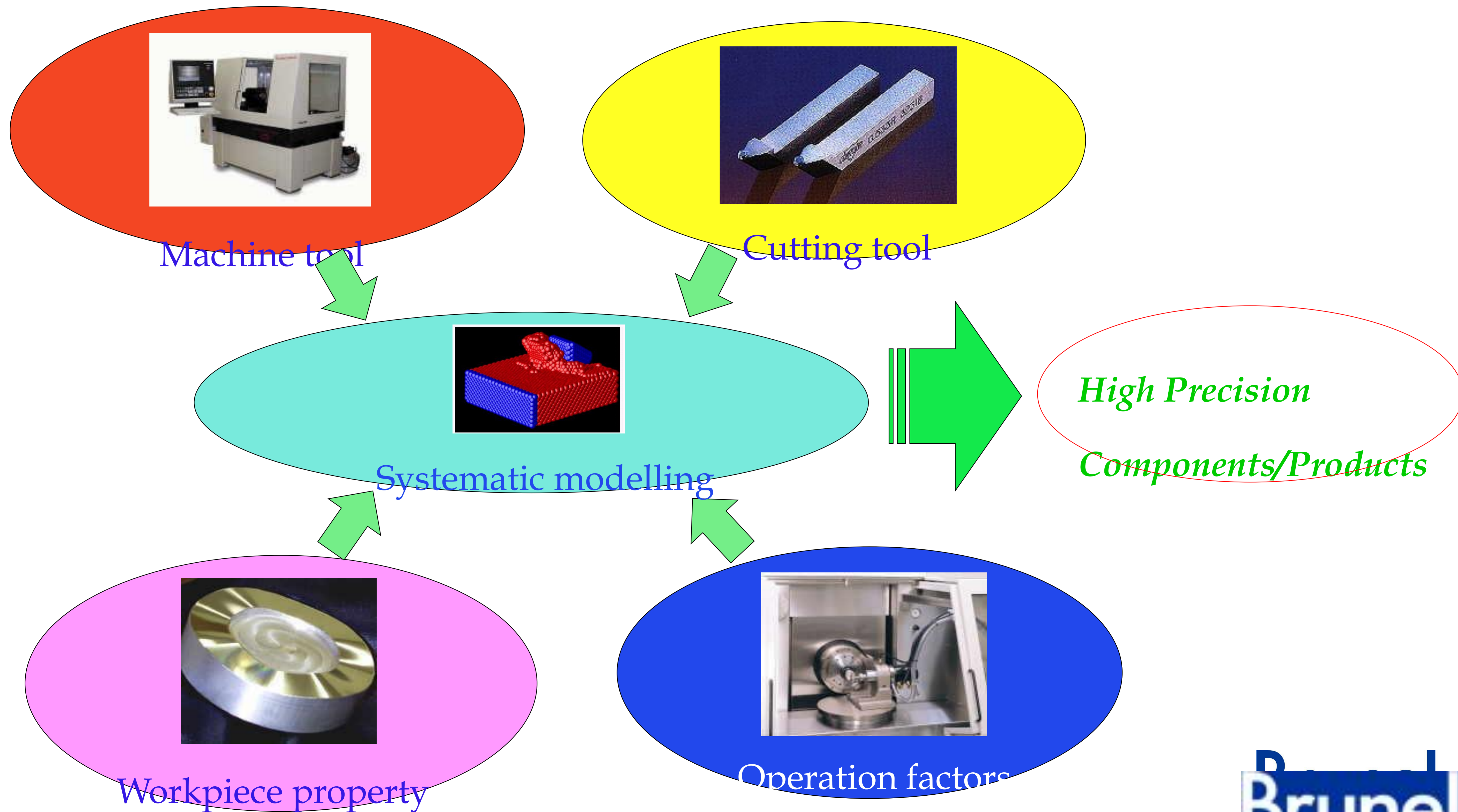


Figure 2: SinglX Structure

Micro/Nano Manufacturing - 'Brunel' Approach (1)

AMEE



5-Axis Micro-milling machine developed at Brunel (1)

AMEE



Specifications:

Working XYZ: 150×150×100 mm

Machining accuracy: <100 nm

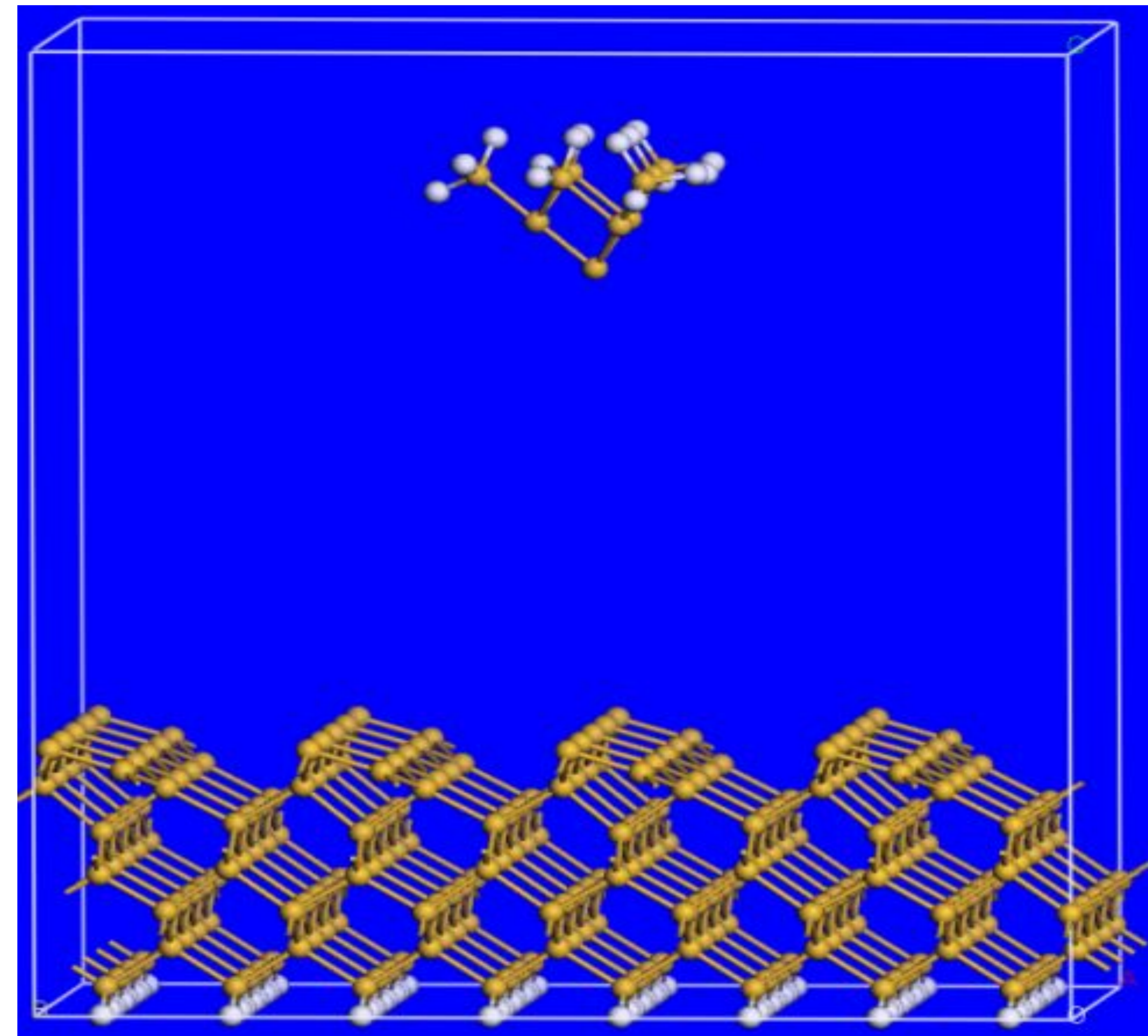
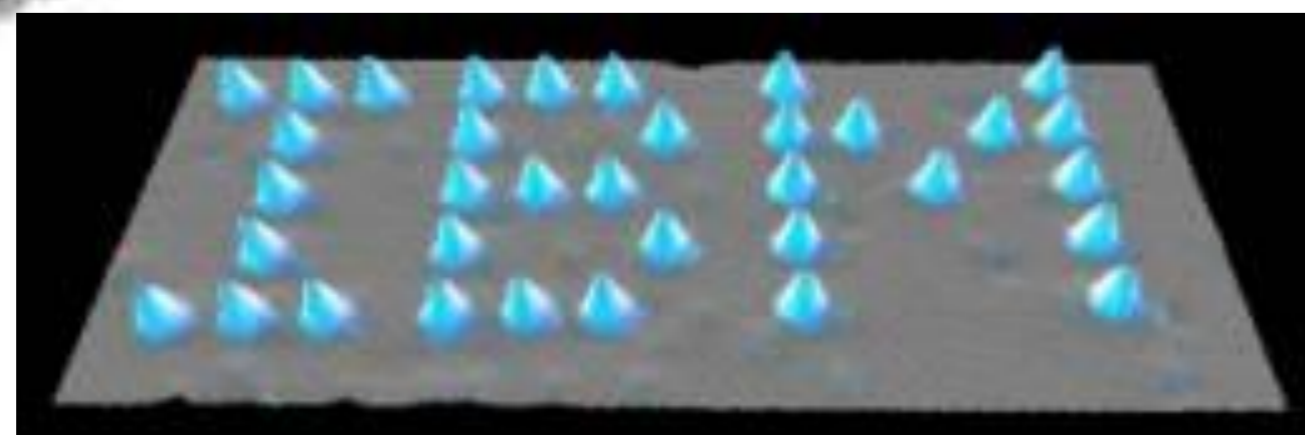
Surface finish: <10 nm

Control system: UAMC 5-axis

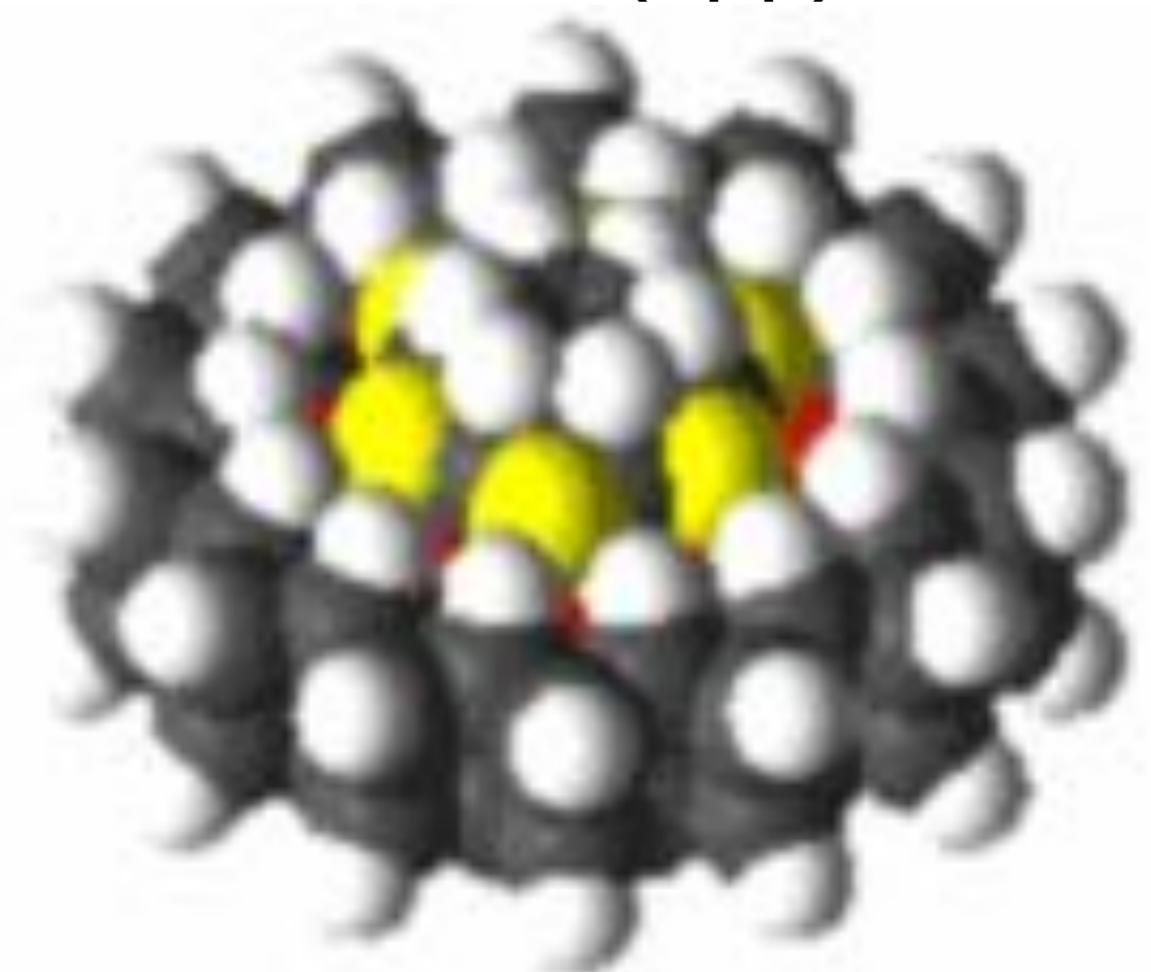


The Matter Compiler: A molecular device printer

- Research Council funded project
- Groundbreaking new research on molecular manufacturing
- Develop a prototype automated computer controller and instruction language to direct a nano-assembler (currently a Scanning Probe Microscope) for the atomically precise assembly of molecules and nanodevices by determining reaction pathways



Dung Q Ly *et al* 2009 J. Phys.: Condens. Matter 21 185006 (8pp)



Surface

Department of Electronics and Computer Engineering

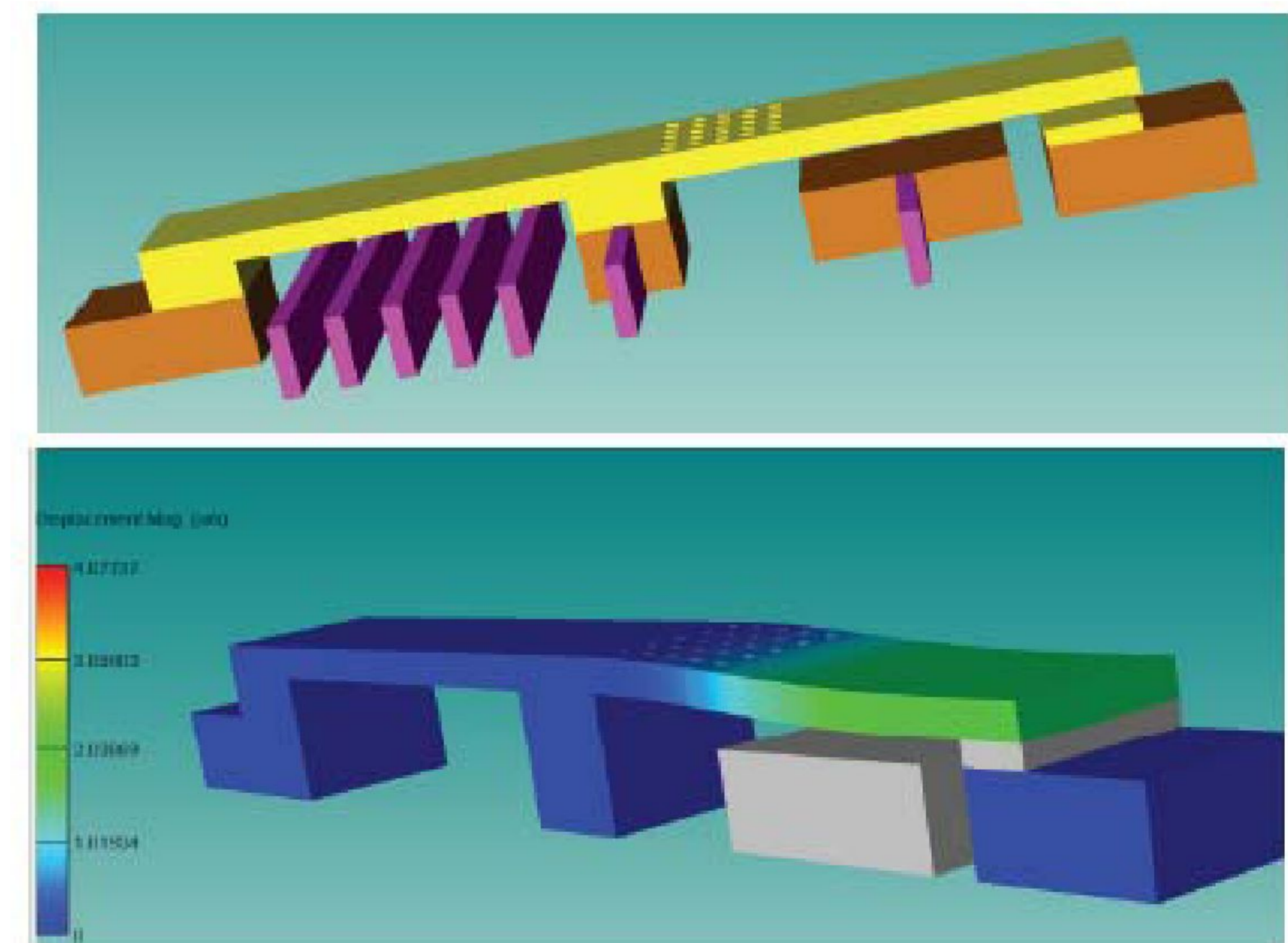
- Brunel Institute of Power Systems
 - Flexible and active distribution network management
 - Paradigm shift from radial and passive
 - Eg Flexible Automatic Voltage Control (AVC) schemes (Active Network Management)
 - Grid connection requirements and codes
 - More large-scale renewable generation
 - Eg Transmission system studies for grid connection of large-scale wind farms

Physics Group (Prof. P. Hobson)

- Vacuum photodetectors
- Scintillators
- Radiation damage in materials
- Holographic recording and replay
- Grid computing
- Non-parametric multivariate statistics

Wireless & Communication Systems (Dr. R. Nilavalan (Nila)

- Multi-band Antennas
- Reconfigurable Antennas
- Flexible Conformal Wideband
- Antennas
- Radio Frequency MEMS



RF MEM Switches

AMEE

Research Partners

