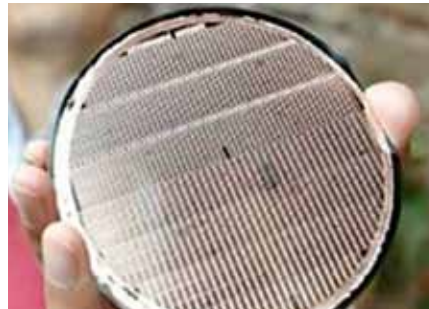
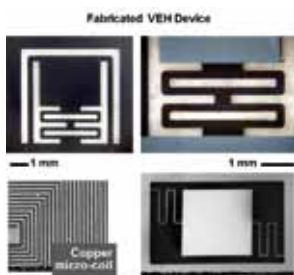
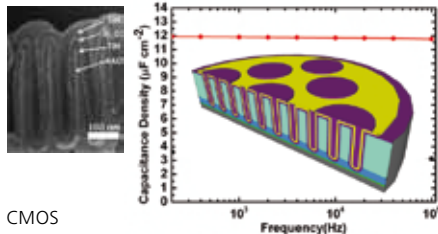
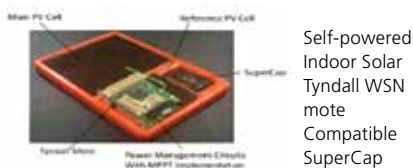


Overview

Tyndall is Ireland's largest research institute and a focal point for ICT research. Its strengths lie in photonics, electronics, materials and nanotechnologies and their applications for energy, healthcare, environmental and communications. Research covers a very broad range 'from atoms to systems'. This includes theoretical modelling and design, novel material, nanotechnology, device processing and fabrication, packaging and integration; and novel systems integration.



Fabricated micro-inductors/transformers

Energy and Environmental applications

Tyndall activities address global energy/environmental issues, particularly the EU 2020 Energy strategy (20% reduction in energy & CO₂, 20% integration of renewables).

Relevant technologies include:

- Wireless Sensors and Embedded Systems, based on the Tyndall WSN (Wireless Sensor Network) mote, for energy efficiency monitoring and control and conditional monitoring
- Thermal modelling of devices and assemblies
- Energy Harvesting hardware (transducers, storage devices, power management circuits & ICs) & models for self-powering of IoT (internet of things) devices
- Fundamental technologies to improve device efficiency through research in Magnetics on Silicon, Packaging and Miniaturization, Current and Magnetic Sensors, Batteries and Fuel Cells

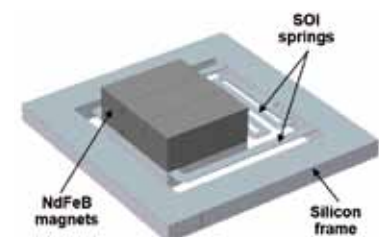


Miniaturised magnetics

Energy Efficiency Integration Activities

Tyndall is actively involved in several EU projects and international consortia including

- Hosting IERC – the International Energy Research Centre, primarily focused on industry led integrated ICT solutions for demand side management.
 - PwrSoC (power supply on chip) research, including chairing/hosting several international PwrSoC conferences.
 - Co-ordinating PowerSwipe, EU's 1st power supply on chip project, miniaturising and integrating high density trench capacitor substrate technology with novel thin film magnetics and a microcontroller chip.
- www.powerswipe.eu



Fabricated vibrational energy harvester