



# Printed Energy Harvesting and Storage systems for Distributed Smart Objects

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## Abstract

There is a lot of talk about putting electronic sensors “everywhere”, enabled both by miniaturization of classic Si electronics and advances in printed electronics. However, sensors everywhere require power everywhere, and the idea of billions of small objects fitted with batteries is a waste disposal nightmare. An alternative is the harvesting of ambient energy, e.g. from light, RF radiation and movement, but some kind of interim storage is needed, and miniature printable, fully non-toxic supercapacitors appear to be a promising alternative. This talk will cover the following topics related to making a viable printed energy harvesting and storage system:

- Printed energy harvesters for RF, motion and light.
- Printed, non-toxic supercapacitors for energy storage.
- Integrated energy harvesting and storage systems.

*All staff and students are invited to attend. Tea/Coffee served before the lecture will provide an opportunity for networking.*



Donald Lupo is Professor at the Department of Electronics and Communications Engineering and the Head of Laboratory for Future Electronics at Tampere University of Technology, in Finland, since 2010. After obtaining his PhD, he worked as an independent consultant with companies such as Sony Europe, NTERA, Samsung, UPM Kymmene and Merck. He led groundbreaking work in organic nonlinear optics, polymer LEDs, solid state dye solar cells and paper-like displays. He is author on over 60 publications and inventor on over 40 patents and applications. He also serves as an external expert in the OLED and printed electronics fields for the European Commission and is an active member of the Organic Electronics Association roadmap team.