Title – ‘Energy harvesting using novel MEMS electromagnetic transducers’

**Project**: Project: The rapid growth in the field of wireless sensor networks has highlighted the issue of powering remote sensor nodes. The requirement to change batteries, or recharge other power sources, places an unwanted additional maintenance and cost burden on such wireless networks. In certain applications where environmental vibrations are present, there is the opportunity to harvest the kinetic energy of these vibrations and use this to power the remote sensor node. The focus of the project will be on design, modelling and development of vibration based electromagnetic micropower generators and developing the associated power management circuit. The project will also include development and characterization of full device and their integration.

**Position available**: Applications are sought for a Postdoctoral Research Associate position under supervision of Prof. Saibal Roy (email: saibal.roy@tyndall.ie) in the Micro-nano-systems center, Tyndall National Institute, Ireland. The successful applicant will work as part of a multidisciplinary research team, which has a focus on the development of integrated magnetics.

The research of this particular position will involve elements of the following;
- Review of state of the art (publications in journals, conferences and patents)
- Mechanical and electromagnetic modelling (FEA) of MEMS structures
- Device batch fabrication using MEMS technologies on FR4/Silicon
- Electrical characterization of fabricated power generators
- Development of required power management circuit using off-the-shelf components

**Requirements**: a) PhD degree in Physics/EE/Materials Science/Mechanical Engineering or similar, in the area of vibration energy harvesting would be ideal.

**Desirable qualifications/experiences**
- Experience in Electromagnetic and Mechanical modelling (FEA) using MATLAB, Maxwell’s Ansoft, COMSOL etc.
- Experience with MEMS fabrication techniques
- Experience in electrical characterization of MEMS devices
- Knowledge in power management for Vibrational energy harvesters
- Independent approach to carry the project work forward
- Ability to partially supervise/assist PhD student/s

Candidates should submit a letter outlining their motivation for the position and their curriculum vitae, to include list of publications, the names, addresses and email IDs of three referees to Prof. Saibal Roy email: saibal.roy@tyndall.ie. Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland. Phone: +353-21-2346331

For further information about this position, please contact either Prof. Saibal.Roy at saibal.roy@tyndall.ie: Phone: +353-21-2346331 or HR Department, Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland.