



Piezo MEMS



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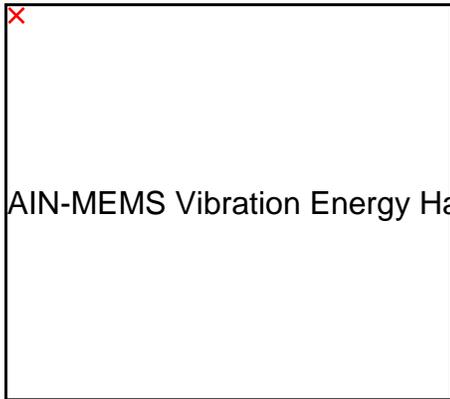
The PiezoMEMS team at Tyndall has two main objectives:

- **develop and enhance novel smart materials with a particular interest in Piezoelectrics**

- **develop and optimize smart MEMS devices**

The team consists of members with a diverse background in various disciplines such as: Electrical engineering, bioengineering, material science, physics, and mechanical engineering. The team investigates everything from atoms to systems. We use fundamental material science to create the smart materials used in the MEMS devices and then integrate the devices into a fully functional system using circuit design.

We have developed devices for a wide range of applications including: energy harvesting, resonators, sensors, transducers, flexible circuits, and robotics. The team has experts in finite element modeling which is used to design the device and predict the output prior to fabrication. Members of the team have extensive knowledge in microfabrication and work closely with the fabrication engineers at Tyndall to make the devices. As part of the Heterogenous System Integration group the team also investigates methods of packaging the MEMS devices in order to increase reliability and performance.



The PiezoMEMS team have developed various types of smart materials with a focus on piezoelectrics. The team specializes in the deposition of CMOS compatible Aluminium Nitride. The team also has worked with other piezoelectric materials such as PVDF, PZT, Lithium Niobate, and quartz. In addition the team has developed smart materials in the area of permanent magnets, triboelectrics, and stimuli-responsive hydrogels, all of which can be integrated into MEMS devices.

The team is always willing to collaborate with other academic or industrial partners where smart materials and/or MEMS are required. Please contact us if you have any questions regarding our research activities or if you want to discuss possible projects.

Contact enquiry (at) tyndall (dot) ie for all Business Development enquiries