

ALN MATERIALS RESEARCH AS A PLATFORM FOR NOVEL MEMS STRUCTURES

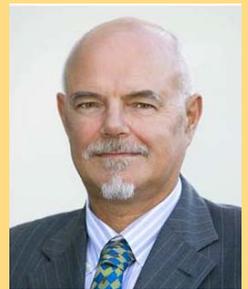
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Piezoelectric materials are slowly becoming introduced into MEMS structures because of their capability for actuation and their ability generate electrical energy as a function of applied force. AlN is a CMOS fab compatible piezoelectric material which is very versatile and provides an substantial number of capabilities for the creation of new devices and sensors as well as for energy harvesting using numerous different physical structures. This talk will provide an overview of AlN materials work underway in the Tyndall Institute and examples of Piezoelectric MEMS of various types and their applications will be discussed in detail.

Short CV

Dr. Alan Mathewson is a Deputy head at MNS centre and head of the Heterogenous System Integration group at the Tyndall National Institute, Cork. He returned to the Tyndall National Institute in October 2007 from a two and a half year sabbatical at CEA, Grenoble, France where he was working on advanced interconnection schemes for three dimensional systems level integration. He currently has responsibility for systems integration activities in the microsystems centre of the Tyndall Institute. He graduated from Northumbria University Newcastle (U.K.) in 1978 and worked for Plessey Research (Caswell) and Racal Research (Reading) Limited until 1982 when he joined the National Microelectronics Research Centre (NMRC), Cork, (which now forms part of the Tyndall National Institute).



During his years of research at NMRC/Tyndall, Dr. Mathewson has been responsible for a large number of innovations in silicon integrated circuit technology, especially relating to novel devices and processes and their characterization and modelling. He has led Tyndall's participation as institute PI or as project leader in a great many (20) large research projects at both European and national level and has supervised 22 Ph.D. and 34 M.Eng.Sc. students. He has generated more than 30 million Euro in research income, and has co-authored more than 300 peer-reviewed publications comprising 120 journal articles and over 200 conference presentations.