

## **MEMS AND THEIR APPLICATIONS**

**FLORES-RIVERA CIRO-FILEMÓN\***

\* Tecnológico de Monterrey, Campus Hidalgo  
Felipe Angeles 2003, 42183, Pachuca, Hgo., Mexico  
[ciro.flores@itesm.mx](mailto:ciro.flores@itesm.mx)

**Key words:** MEMS, Electromagnetism, Mechanics, MEMS applications

### **ABSTRACT**

Micro Electro-Mechanical Systems (MEMS) have been highly developed during the past decade. There is a wide range of MEMS applications including sensors, actuators, microfluidics, and piezoelectric devices, among others. These MEMS applications appear in a great variety of human activities such as the automotive sector, telecommunications and human healthcare.

The objective of this Minisymposium is to present the mathematical and computational modelling of MEMS and their applications. It includes such topics as continuum mechanics, thermally driven systems, elasticity, coupled thermal-elastic or electrostatic-elastic systems, magnetic driven systems, etc. Analysis and modelling of multiphysics phenomena are welcome as well. Each paper or presentation must contain as a minimum a model description, mathematical formulation, the numerical strategy for solution, results (including graphs if applicable), future work and conclusions. It is possible to select any numerical method available in the market to solve the mathematical model. Thus, the Finite Element Method, meshless methods, the Finite Volume Method, or any method can be used with an appropriate justification. It is possible to utilize commercial software as well as self-designed programs.

It is expected that each author can briefly explain the main contribution of his/her work and how it facilitates development of humanity.

### **REFERENCES**

- [1] Bhadauria, R., Pidaparti, R.M., and Gad-el-Hak, M. "Solution of Two-Dimensional Viscous Flow Driven by Motion of Flexible Walls," *CFD Letters* **2**, pp. 1, (2010).
- [2] M. Gad-el-Hak, ed., *The MEMS Handbook*, second edition, volumes I–III, Boca Raton: CRC Press (2005).
- [3] O.C. Zienkiewicz and R.C. Taylor, *The Finite Element Method*, 4<sup>th</sup> Edition, Vol. 1, Mcgraw Hill, (2012).