

**5<sup>th</sup> INTERNATIONAL CONFERENCE ON COMPUTATIONAL  
AND EXPERIMENTAL SCIENCE AND ENGINEERING  
(ICCESEN-2018)**

*12-16 October 2018, ANTALYA-TURKEY*

---

**Recent Advances in Nanotechnology and Shapeable Magnetolectronics**

Numan AKDOĞAN✉

*Gebze Technical University, Department of Physics, 41400 Gebze, Kocaeli -TURKEY*

**Abstract**

Nanotechnology is a collective term for a range of technologies, techniques and processes that involve the manipulation of matter at nano scale. 1 nm can be achieved by putting 5 atoms side by side. At this very small scale, new effects occur and the boundaries between physics, chemistry and biology vanish. Thus, the physical, chemical, optical and electrical properties of materials change in unexpected ways. This results in new, exciting and different characteristics that can generate high-value-added novel products. Within this concept, shapeable (flexible, printable, and even stretchable) magnetolectronics became one of the most important technological research fields of the last years. Foreseeable applications of highly sensitive, cost effective and re-shapeable magnetolectronics also include magnetic particle detection in microfluidics and lab-on-a-chip platforms. In this talk, I will give a brief information about nanotechnology and its recent applications. I will also discuss the importance of shapeable magnetolectronics as a newly developing field of nanoscience. Finally, I will talk about our ongoing research on planar Hall effect-based biosensor applications.

**Keywords:** *Nanotechnology, shapeable magnetolectronics, lab-on-a-chip platforms*

✉ *Corresponding Author Email: akdogan@gtu.edu.tr*