World Academy of Science, Engineering and Technology
International Journal of Electrical and Information Engineering
Vol:10, No:03, 2016

# A Nanoelectromechanical Tunable Oscillator Base on a High-Q Optical Cavity

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**Abstract :** We developed a miniaturized tunable optomechanical oscillator based on the nanoelectromechanical systems (NEMS) technology, and its frequencies can be electrostatically tuned by as much as 10%. By taking both advantages of optical and electrical spring, the oscillator achieves a high tuning sensitivity without resorting to mechanical tension. In particular, the proposed high-Q optical cavity design greatly enhances the system sensitivity, making it extremely sensitive to the small motional signal.

**Keywords :** nanoelectromechanical systems (NEMS), nanotechnology, optical force, oscillator
**Conference Title :** ICCSSP 2016 : International Conference on Circuits, Systems, and Signal Processing
**Conference Location :** Singapore, Singapore
**Conference Dates :** March 03-04, 2016