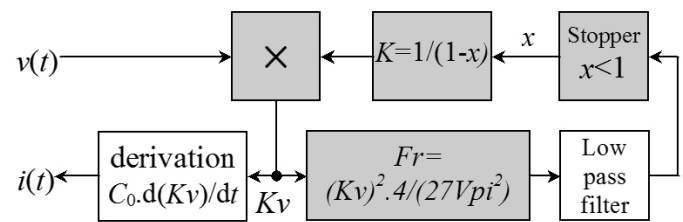


## 05NT047 Electromechanical characterizations of MEMS based energy harvesters by harmonic sampling analysis method

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This paper presents an experimental method based on harmonic distortion analysis to determine mechanical characteristics of MEMS devices to be used as energy scavengers or more generally in widespread MEMS-based applications. This technique uses the mechanical-electrical analogy of MEMS variable capacitor acting as a low-pass filter to give access to both resonant frequency and damping factor of the mechanical system through the determination of the filter parameters as the cut-off frequency. Characteristics of various MEMS devices have been measured using this method and the results are compared to measurements of their resonant frequencies carried out with Deep Level Transient Spectroscopy measurement system.



Flowchart of fundamental equations of the MEMS.

## 05NT119 Phase error in current transformers with nanocrystalline alloys core

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Based on the electromagnetic properties of nanocrystalline alloys, such as high relative magnetic permeability, low coercive force and low hysteresis losses, in this paper are presented some considerations about the application of these materials in toroidal cores used as current transformers. Also, are discussed how the ferromagnetic core characteristics affect the current transformer performance. From the experimental results, it can be concluded that the use of nanocrystalline alloys in the current transformer cores can contribute to the reduction of phase errors, improving thus the accuracy class.

Keywords: current transformer, nanocrystalline alloys, toroidal cores.