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Preliminary research on electrical response comparison of piezoceramic crystal attached to cantilever beam

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The recent trends in electro-mechanical technology have created a demand for low power consuming and efficient technologies to cater the needs of Industries. Energy harvesting using piezoelectric devices is one of possible way to accomplish this short term goals. The application of Piezoceramic materials is unanimously increasing in areas of Energy harvesting as it has minimum weight and appealing efficiency. In this paper we are comparing Piezoceramic material as a Single crystal and Series of Piezoceramic crystals are crystal placed in a cantilever beam are tested under excitation in a Subsonic Wind tunnel. Cantilever beam when subjected to airflow vibrates in lateral axis along with Piezoceramic crystals which produces an electrical response. The electrical response are recorded in an Oscilloscope and plotted to compare their characteristics and evaluate the maximum voltage generated for a particular force of vibration. Piezoceramic material used for our research is Brass coated with Zinc which is used in electrical buzzers. Wind Tunnel which is used for exciting the crystals is a subsonic wind tunnel and maximum speed input is 1200 rpm. From this paper we can able to compare the efficiency of electrical response of Single and Series Piezoceramic crystals under excitation.

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Synthesis and structural elucidation of Ni (II), Cu (II), Zn (II) and Cd (II) metal complexes of oxazoline based ligands

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Synthesis of 2-(2'-hydroxyphenyl)-2-oxazoline(2-Phox) and 2-(4-hydroxyphenyl)-2-oxazoline(4-Phox) and their complexes with Ni(II), Cu(II), Zn(II) and Cd(II) have been done. They have been characterized by elemental analysis, magnetic susceptibility, NMR (HH-COSY, HSQC, HMBC), UV-vis, IR spectroscopy and conductance measurement. The complexes were formed in 1:2 (M:L) ratio. Their molar conductance of one millimolar solution measured in DMF indicated them to be non-electrolyte. On the basis of these studies a tetrahedral geometry has been assigned for all the complexes.

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