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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 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 compare the efficiency of electrical response of single and series Piezoceramic crystals under excitation.

Biography

J Karthik is a Doctoral Research Scholar from School of Mechanical and Building Sciences VIT University, Chennai Campus India. He has worked as an Assistant Professor in Department of Aeronautical Engineering for 2.5 years. He is one of the academic medalists in his Post-graduate studies and published research paper in Springer Notes and various conferences. Currently he is doing his Doctoral Research in Energy Harvesting from Smart Structures at VIT University, Chennai, India.

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