

講演会の御案内

第270回応用セラミックス研究所講演会

- 日時 : 平成26年6月13日 (金) 14:00~15:30
- 場所 : J2棟20階 中会議室
- 講師 : **Rahul C. Kambale** (Assistant Professor, Department of Physics, University of Pune, India)
- 演題 : ” **Magnetoelectric Structures of Piezoelectric / Magnetostrictive Materials For Energy Harvesting and Sensor Applications**”

Multiferroics exhibit at least two of the “ferroic” properties i.e. ferroelectricity, ferromagnetism, and ferroelasticity in the same phase. Multiferroic magnetoelectric (ME) composite materials of magnetostrictive-piezoelectric phases possesses strong multiferroic / ME property through elastic interactions occurring at the interface of these two phases. The ME structures comprising piezoelectric / magnetostrictive phases can generate power with multiple stimulation sources like mechanical and magnetic vibrations and will enhance the power density as well as time efficiency of the harvesters. The ME materials are those materials which exhibits the so called magnetoelectric effect i.e. inducing magnetic (electric) polarization by applying an external electric (magnetic) field.

Since the ME composites comprise of the piezoelectric/ magnetostrictive structures, they can find their possibility for vibrational-to-electricity power generators, i.e., energy harvester. Also, the piezoelectric generators are known to be effective in producing high power density due to their ability of converting mechanical energy into electrical energy for large amounts of stress and have simple structures compared to the other generators using electrostatic and electromagnetic effects. Thus, the ME (piezoelectric/magnetostrictive) harvesters can generate power with multiple stimulation sources like mechanical vibration and magnetic vibration and will enhance the power density as well as time efficiency of the harvesters. Here, the idea of ME effect and piezoelectric vibrational energy harvester is discussed.

問合先 : 応用セラミックス研究所 伊藤・谷山研究室 谷山 智康 (5632)