



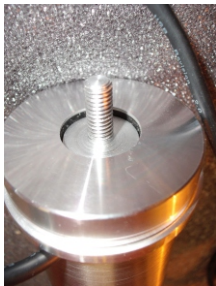
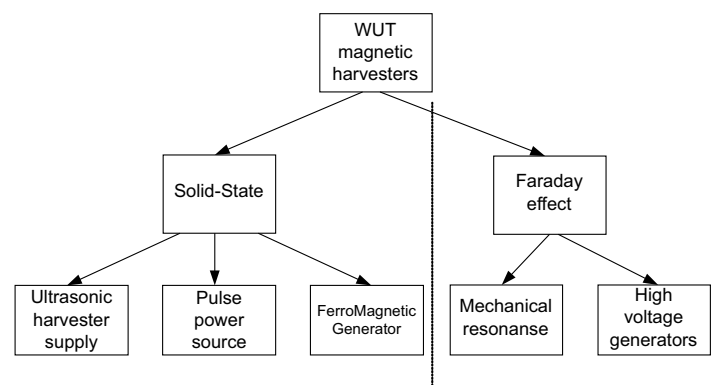
MAGNETIC HARVESTERS

In the Continuum Mechanics Division, as a part of the studies of SMART materials, the group of materials for harvesting applications were selected. The basic material is Terfenol-D. Due to the fragility and high price of the Terfenol-D material, a new type of composite with appropriate additives was made. This new material:

- is fracture resistant
- has lower eddy currents,
- has greater efficiency in the conversion of physical effects into electric current.

Apart from Terfenol-D, it is important to use strong neodymium magnets, so that the values of generated power are maximum.

Our team has developed a number of solutions and harvesting methods predisposed for SHM applications. The scope of works on magnetic harvesters is presented in the following scheme:

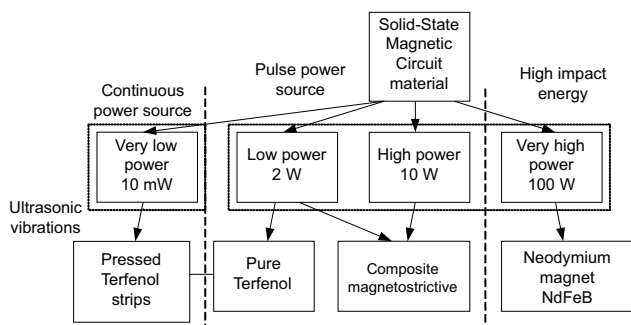


We are working on the following types of harvesters:

- with SMART magnetostrictive core,
- with different amount of used Terfenol-D material in the magnetic circuit,
- ready to attached to the mechanical construction,
- Tactical Grade Harvester,
- twin harvesters.

Solid-State type harvesters with SMART magnetic cores are manufactured in groups:

- suitable for use as a Pulse Power Supply, operating under the influence of mechanical shock,
- as a Continuous Power Supply operating under the influence of ultrasonic vibrations.



Summary of our magnetic harvesting devices

Harvester type	Dimensions [mm]	Weight [g]	Pulse power [mW]
Miniature low power	φ 50x35	200	2000
Low power	φ 50x50	300	5000
High power	φ 50x150	1000	10000
Tactical Grade	φ 80x250	1500	10000