Manufacturing and Investigation of Piezoelectric Composites

✓ **Bachelor- / Studien- / Masterarbeit**

Piezoelectric composites are 3D printable sensors with applications in Structural Health Monitoring. The properties and sensitivity of the sensors are materials and manufacturing parameters dependent. Therefore, the best material combination is researched.

This thesis focus on the use of lead-free piezoelectric ceramics (KNN) as a main active material. Highly conductive nano-fillers are added to improve the performance of the sensors. These both materials are dispersed in UV-curable photopolymer resin.

Firstly, the materials are mixed and then the sensors are manufactured using simulated 3D printing process by using UV-light. Various material combinations will be investigated systematically by manufacturing sensors and measuring their response under various conditions.

If you would like to learn more about material development, 3D printing and sensor characterization, join us.

Additional information:
↗ Part of experimental work will take place at DLR Braunschweig
↗ Multiple works on same topic possible (e.g. Studienarbeit + Masterarbeit)

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