

FOSTERING THE PARADIGM SHIFT IN MATERIALS RESEARCH

International Conference on Programmable Materials

27 - 29 April 2020, Berlin

Symposium

Applications and design with programmable materials

Today, technical functions are usually realized by the assembly-based combination of various subcomponents, which in their interaction represent an actuator or sensory function. This additive design paradigm increasingly reaches the limits of what is physically feasible. Further functional compression can only be achieved with conventional methods with immense effort and an immensely increasing product complexity. One way to solve this conflict is to shift functions directly to the material level. Programmable materials allow a temporal change of material properties by their inner structure. If this change is triggered by a suitable impulse, a previously programmed function is realized.

Programmable materials thus enable a completely new class of technical products in which the complexity of the function no longer dictates the complexity of the system. The application potentials of such programmable materials are very wide-ranging. At the same time, this paradigm shift in design also requires changes in the development methodology. In particular, making design freedom controllable is of special importance. In this context, the symposium is dedicated to two basic questions:

- Which product ideas result from the possibilities of material-integrated function generation?
- What is the development process like with the immense freedom of programmable materials?

The symposium provides an overview of current research work in the field of programmable materials and smart structures. Topics of interest are those that have a concrete product reference as well as visionary product ideas that are currently still in the basic stage. Furthermore, contributions are of interest that explicitly deal with the development process of products with programmable materials or structure-integrated functionalities.

The symposium is therefore aimed at scientists and developers working on the development of products with programmable materials or structure-integrated functionalities. Lectures or posters with a half-page abstract can be submitted, which will be evaluated in a scientific selection process.

Symposium organizers

*Linda Weisheit, Fraunhofer IWU, Dresden,
linda.weisheit@iwu.fraunhofer.de;*

*Dr. Sylvia Schattauer, Fraunhofer, Munich,
sylvia.schattauer@zv.fraunhofer.de*