

Light and graded material structures made of plastic, in Industry 4.0 (Legra)

Project management: Prof. Dr.-Ing. Achim Schmiemann

Summary: Inexpensive standard plastics are to be used within the scope of this project. These thermoplastic plastics, such as polypropylene (PP), acrylonitrile butadiene styrene (ABS) and polycarbonate (PC) are used in injection-moulding, mass manufacturing processes. So as to be able to specifically adjust the properties of a component made of injection-moulded thermoplastic, and to manufacture very light structures and components, technical research results relating to processes and tools will be deployed, and further developed in an application-oriented manner.

The lightweight building materials need to be more than simply lightweight. They need to be tailored to their specific application and perform other functions. The material could then display, for example, different thermal expansion coefficients on each of its sides. The adjustment of defined electrical conductivity of a plastic which in itself is non-conductive, reduces the electrical chargeability. It allows the use of a non-conductive plastic in organic electronics or optoelectronics.

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