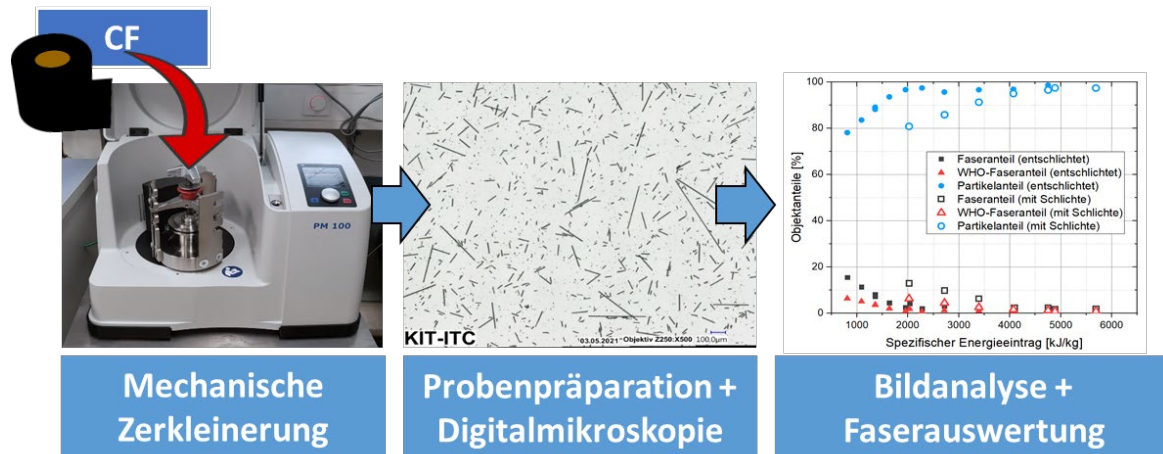


## Field of activity

### Investigations on the utilization of CF in high-temperature processes



With a steadily increasing demand for carbon fibers (CF) or carbon fiber reinforced plastics (CFRP), the amount of CF-containing waste to be recycled at the end of product life (EoL) is continuously increasing. Recycling of the material is accompanied by a reduction in fiber length, but also in fiber properties, which affects the possibility of economic recycling and implies other recycling of EoL waste. Conventional thermal processes are not suitable for recycling waste containing CF, so that no disposal process is currently available for EoL waste streams.

Pyrometallurgical slag systems for the recycling of CF-containing waste are therefore being investigated together with partners. Essential for such processes is knowledge of the dependencies of the comminution behavior of CF/CFRPs on their material properties, considering the generation and release of respirable fiber fragments (WHO fibers).

Systematic investigations of the mechanical comminution behavior of different CF grades based on polyacrylonitrile and mesophase pitch are carried out in a planetary ball mill with variation of the specific energy input to correlate the fiber properties with their comminution behavior. The characterization of the starting material, as well as the comminuted CF is performed by digital microscopy and automatic image analysis. The evaluation routine is based on a commercial image analysis software with adapted evaluation tools.

Contact person: [Jonathan Mahl](#)