INfiltration of porous materials: metal-graphite composites

Motivation
The demand for performance and efficiency increases in bearing applications, for example for increased rotational speed in aircraft turbines. In this case higher operation and emergency mode temperatures need to be possible. Bearings currently consist of, among others, polyimide, a polymer material that can be used at higher temperatures yet begins to degrade during use and thus does not offer sufficient reliability. To increase the service life of bearings, for example in aircraft engines, novel temperature-stable materials are necessary.

Infiltration of porous materials
Besides the infiltration of porous graphite, at Fraunhofer IFAM there also exist technologies for the infiltration of diverse porous materials such as metals, plastics or ceramics with lightweight metal in order to optimize their application-specific properties.