

FRAUNHOFER ADDITIVE MANUFACTURING ALLIANCE

PRESS RELEASE

PRESS RELEASE:

June 25, 2019 || Page 1 | 2

Fraunhofer Additive Manufacturing Alliance at the Rapid.Tech:

Turbine manufactured by 3D printer

The Fraunhofer Additive Manufacturing Alliance shows its latest developments in additive manufacturing at the Rapid.Tech Fair, Booth 2-207, and at its own forum during the specialist conference. The technology demonstrator "Siemens SGT6-8000H" is presented as the leading exhibit consisting of a gas turbine manufactured by electron beam melting and laser beam melting.

Together with H+E-Produktentwicklung GmbH in Moritzburg, Saxony, Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM in Dresden has developed the technology demonstrator "Siemens SGT6-8000 H". This component assembly contains 68 parts of aluminum, steel and titanium, replacing the nearly 3000 individual parts that make up the original component. It is realized due to component optimization and the technologies of electron beam melting and laser beam melting. For this purpose components with complex geometries are generated by selective melting of thin powder layers, using electron beam or laser beam processes. The manufactured turbine is fully functional. It impressively demonstrates the current potentials and limits of powder bed based additive processes.

The models of the Elbe Philharmonic Hall are another highlight exhibit presented by scientists of Fraunhofer Research Institution for Additive Manufacturing Technologies IAPT. These models demonstrate the freedom of material and design of additive manufacturing. Among other things, Fraunhofer Institute for Surface Engineering and Thin Films IST exhibits a scaffold of sawn bone for illustrating the benefit of plasma treatment by atmospheric pressure and the subsequent option of coating with functional groups. Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut EMI shows a topology-optimized damper fork of a car as part of a study, demonstrating the ecological and economic impact of additive manufacturing processes using metal compared to conventional casting processes. Furthermore, latest trends in ceramics by Fraunhofer Institute for Ceramic Technologies and Systems IKTS will also be displayed.

Editorial notes

Sandra Piehler | Fraunhofer Institute for Machine Tools and Forming Technology IWU | Phone +49 371 5397 1465 |
Reichenhainer Straße 88 | 09126 Chemnitz | www.iwu.fraunhofer.de | sandra.piehler@iwu.fraunhofer.de

FRAUNHOFER ADDITIVE MANUFACTURING ALLIANCE

Specialist forum focuses on hybrid manufacturing

The specialist forum of the Fraunhofer Additive Manufacturing Alliance takes place on June 26, dealing with hybrid manufacturing in four out of seven lectures. The presentations include the customized use of energy sources for hybrid processing of high-performance materials in additive manufacturing, and the increase of cost efficiency by combining additive manufacturing and conventional processes. Additionally, the lectures comprise the combination of additively produced stainless steel components with aluminium castings using pressure die casting, and multi-material processing in laser beam melting. Further presentations deal with additive manufacturing processes in the context of digital production, with surface technology of additive components, and with selective laser sintering of plastics, particularly concentrating on the influence of the focal diameter.

PRESS RELEASE:

June 25, 2019 || Page 2 | 2



Technological demonstration model "Siemens SGT6-8000H", scaled model in a gas turbine for power generation. It was produced entirely by additive processes.

Photo acknowledgement: ©Fraunhofer IFAM and H+E Produktentwicklung GmbH | www.ifam.fraunhofer/ebm

The **Fraunhofer Additive Manufacturing Alliance** integrates nineteen Fraunhofer institutes across Germany and represents the entire process chain. In addition to the direct use of additive technologies, its research foci include the development of materials and applications, and subjects of quality. The objective of the interdisciplinary cooperation comprises developing technological and conceptual solutions regarding additive manufacturing processes. Intensive knowledge transfer is based on the complementary profiles of the individual institutes, enabling integrative insights in research and development.

Further contact person:

Dr.-Ing. Bernhard Müller | Phone +49 351 4772-2136 | geschaeftsstelle@generativ.fraunhofer.de | Fraunhofer Institute for Machine Tools and Forming Technology IWU, Dresden | www.generativ.fraunhofer.de