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Additive SLS machine for PEEK

Alexey Nazarov

Moscow State Technological University, Russia

The parts manufactured by the selective laser sintering (SLS) technology from some types of powders based on polyetheretherketone (PEEK) cause increased interest. They have high strength values, high heat resistance, as well as excellent biocompatibility and dielectric properties. A set of these properties in combination with the capabilities of the SLS method allows creating unique parts. These parts are increasingly used in the aerospace industry, medicine, and motorsport.

We present the original design of the SLS machine for PEEK, which has the following advantages:

- i. The accuracy of the applied powder layer $\pm 10\mu\text{m}$
- ii. The capability of automated control of the powder recoater alignment
- iii. The possibility of changing the intensity distribution into the spot of laser radiation from “gauss” to “reverse gauss” or “top hat”, which can improve the quality of the components produced by the SLS method and others.

Speaker Biography

Alexey Nazarov has completed his PhD at the age of 26 years. He is the designer of SLS/SLM equipment, engineer of the Laboratory of Innovative Additive Technologies of MSTU “STANKIN”, Moscow.

e: nazarovstankin@mail.ru



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