

## APPLICATION OF SELECTIVE LASER ALLOYING IN ORTHOPEDICS AND TRAUMATOLOGY OF VETERINARY<sup>1</sup>

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Nowadays selective laser melting is used at various fields [1,2]. Its wide usage is explained by advantages such as the opportunity of forming of complex 3D elements and inner cooling channels; small amount of wastes of production. One of the most promising fields of medical usage of selective laser melting is production of bone implant made from biocompatible materials.

Titanium was used as biocompatible material. Individual implants were formed at the device SINTERSTATION® PRODM125 SLMB (Laser - CO<sub>2</sub>, lasered Power SP-200C-04, Max laser power – 200 W, Scanning speed - up to 1000 mm/s, Layer thickness - 20 -100 μm). At first the 3D model of the patient's (a small breed dog) skull with a defect after a traumatic brain injury was made by computed tomography.

Based on the skull 3D reconstruction a 3D model of the missing fragment was created. Its geometric dimensions were defined that the formed missing fragment could be fixed on the skull at the following operation. For the same purpose, a perforation was made on the implant (Figure 1.). To check the conformity of the implant to the skull defect and to increase the level of preoperative planning, in addition to the missing fragment, a part of the skull was made (Figure 1). This gave an opportunity to surgeons to carry out detailed pre-operational planning.

The next step of this work is carrying out a surgical operation to close the cranium with an individual implant.

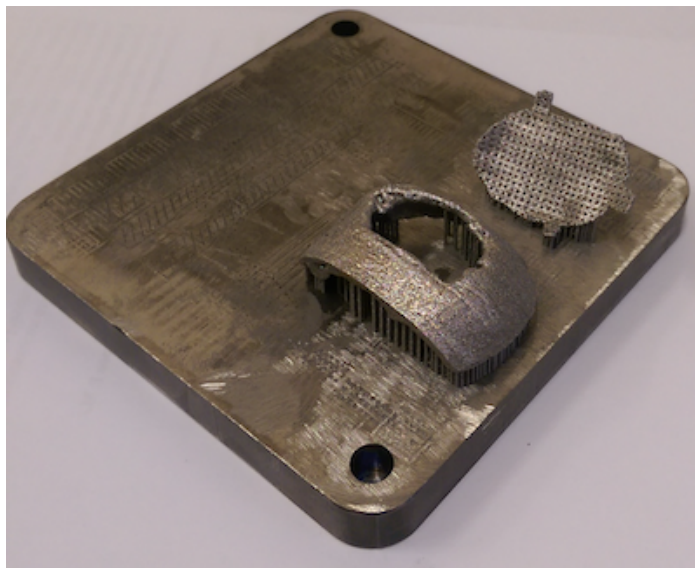


Fig. 1. Part of the skull and implant

### REFERENCES

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