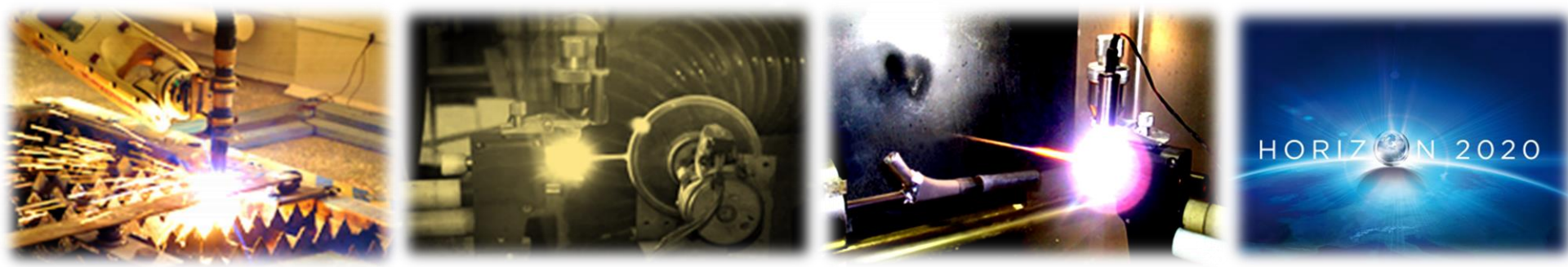


Individual manufacture of medical Ti-implants using microplasma processing

For planned Horizon 2020 project

Successful R&I in Europe, 16 March 2018

Session 4, Workshop Life Sciences

Prof., Dr Darya Alontseva

D. Serikbayev East Kazakhstan State Technical University (EKSTU)
Ust-Kamenogorsk (Oskemen), Kazakhstan, DAlontseva@ektu.kz

Our project-idea:

Developing cheaper and patient specific medical implants (Ti/ Ti-Ta-Nb)

We pursue two approaches:

1) Implant lathing by numerically controlled machines, followed by surface purification and quality control.
2) Microplasma spraying of biocompatible Ti wires and hydroxyapatite powders onto implants using an industrial robot.

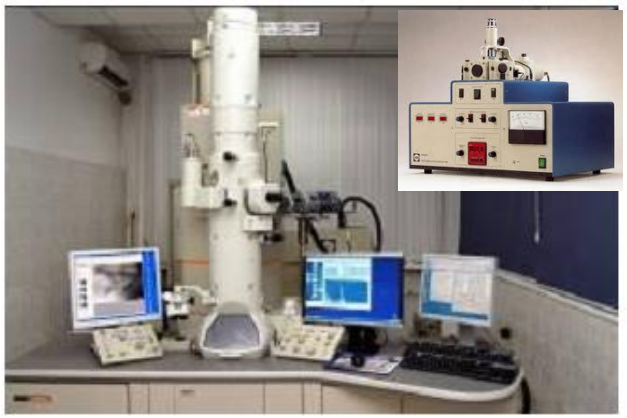
Goal: process optimizing & prototype development

Technological equipment

A pilot production site with an industrial complex for air-plasma metal cutting or microplasma spraying wire or powder coatings on the basis of an industrial robot **Kawasaki RS-010LA** (Kawasaki Robotics, Japan)

Implant lathing at Computerized and Numerically Controlled machines produced by **DMG MORI** (Germany)

Analytical equipment



Transmission Electron Microscopy (TEM) by JEM-2100 (“JEOL”, Japan)
Precision Ion Polishing System M-691 (“Gatan”, USA)

X-ray diffraction (XRD) by X’Pert PRO (“PANalytical”, the Netherlands)

Scanning Election Microscopy (SEM) by JSM-6390LV (“JEOL”, Japan)

Who we are ...

D Serikbayev EKSTU expertise: **material science, mathematical modeling, automation and control of technological processes**

Project management at EKSTU

Dr. Darya Alontseva
Professor, department of Instrument Engineering and Technology Process Automation,
D Serikbayev EKSTU
Full professor of Physics
https://goo.gl/ySU58A
https://www.researchgate.net/profile/D_Alontseva

Vice-Rector for International Relations of D. Serikbayev EKSTU

Dr. Talant A. Ryspaev
Doctor habilitatus of technical sciences (FRG)
Doctor of technical sciences and Honorable professor of Kyrgyzstan state technical university (Kyrgyzstan)
Privat-docent of Clausthal technical university (Lower Saxony)
http://www.ektu.kz/divisions/interndep/director.aspx?lang=en

Currently the team of 30 scientists are working on the project at EKSTU, among them 6 PhD-students and 5 master students

Key international links

Dr. Elaheh Ghassemieh
Professor of advanced manufacturing, **Academic research lead for CESAM (Centre of excellence for sustainable advanced manufacturing with NISSAN),** Faculty of Engineering and Advanced Manufacturing, University of Sunderland, UK

Dr. Györök György
Dean of Alba Regia Technical Faculty, Óbuda University, Székesfehérvár, Hungary
http://www.arek.uni-obuda.hu/~gyorok/GyGy_szakmai/

https://uk.linkedin.com/in/elaheh-ghassemieh-245ab183

What we are looking for ...

1. ***Universities, research organizations and companies,*** particularly, those with experience in:

   a) manufacturing of medical goods

   b) medical science.

2. ***Partners with experience …***

   a) … with the European Patent Office

   b) … in the field of quality management

   c) …in modern project management & conducting EU-projects

We are also open to participate in projects and welcome institutions who are willing to take the lead.

Thank you for your attention!

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