



**Faculty of Engineering  
University of Kragujevac  
UniKG  
Serbia**

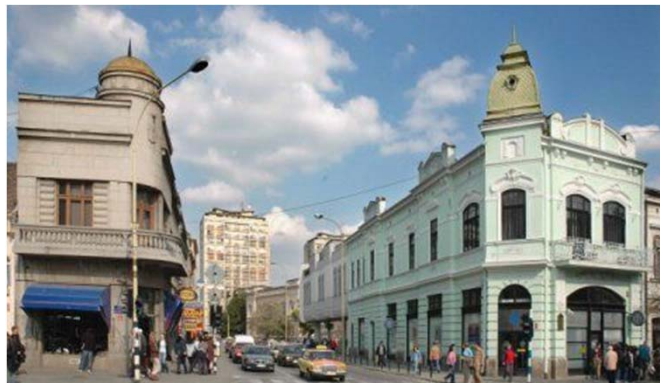
**Kick-off meeting**

Barcelona, 3-5 March 2014

# University of Kragujevac, UniKG, Serbia

- 12 faculties
- 14 000 students
- 1000 academic staff

## Kragujevac



# Faculty of Engineering Kragujevac

## [www.fink.rs](http://www.fink.rs)

- Established in 1960
- The oldest faculty of the University
- 24 Centers, 10 Labs
- 4 buildings - 15.000 m<sup>2</sup> gross area
- Number of teaching staff: 82 (25 full professors, 15 associate professors, 12 assistant professors, 15 assistants, 45 doctoral students)



# Faculty of Engineering Kragujevac

- **Undergraduate**, Bachelor programs
- **Graduate**, Master programs
  - Mechanical engineering
  - Automotive engineering
  - Urban engineering
  - Business Information System
  - Industrial Management
- **Doctoral programs**
  - Mechanical engineering
  - Bioengineering

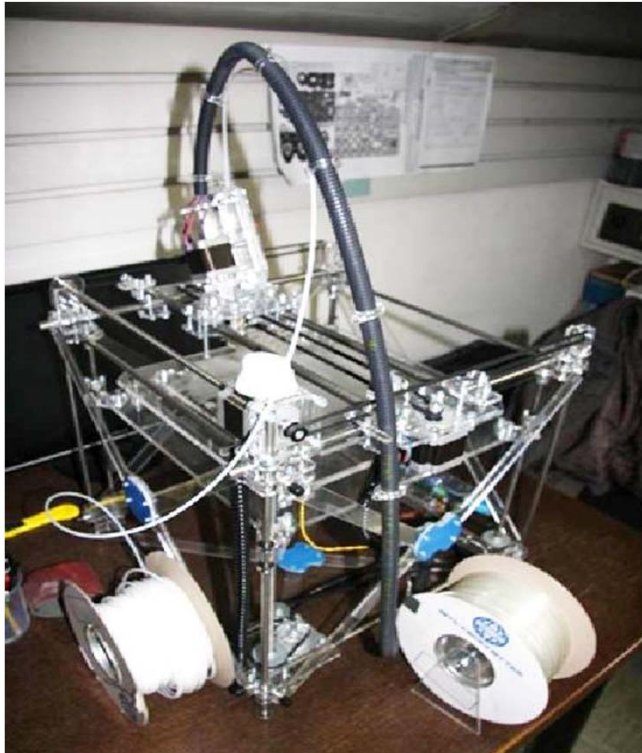


## Departments

- **Manufacturing Engineering**
- **Applied Mechanics and Automatic Control**
- **Computer Engineering**
- **Industrial Engineering**
- **Motor Vehicles and Motors**
- **Mechanical Constructions**
- **Energy and Process Engineering**
- **Mechatronics**

# Center for Information Technologies

## Rapid Prototyping



**BitsFromBytes RapMan**



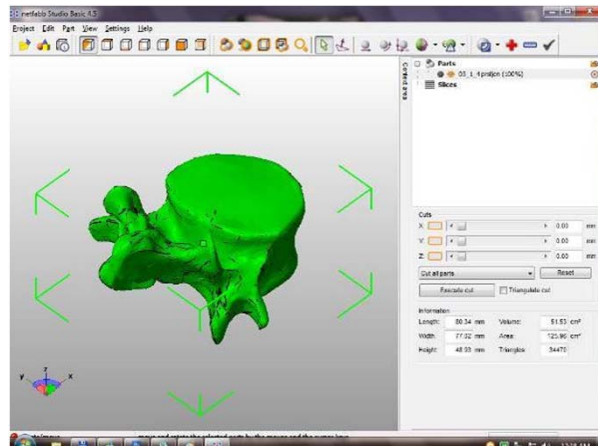
**ZPrinter 310 System**



**Vacuum casting system**

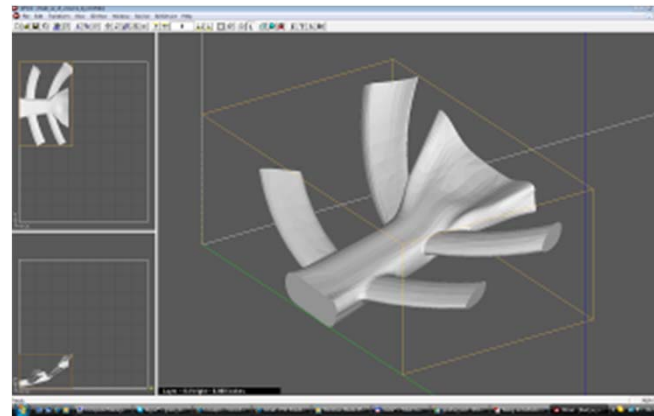
# Center for Information Technologies

## Rapid Prototyping



# Center for Information Technologies

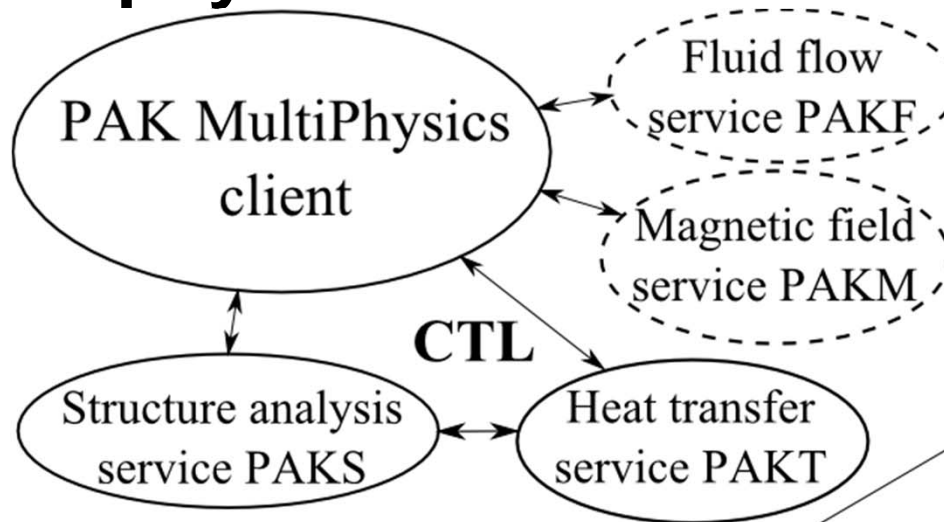
## Rapid Prototyping



**STERNUM  
BONE  
fabrication**



# Multiphysics software PAK - development group



ShapeMemoryAlloys

ShapeMemoryPolymers

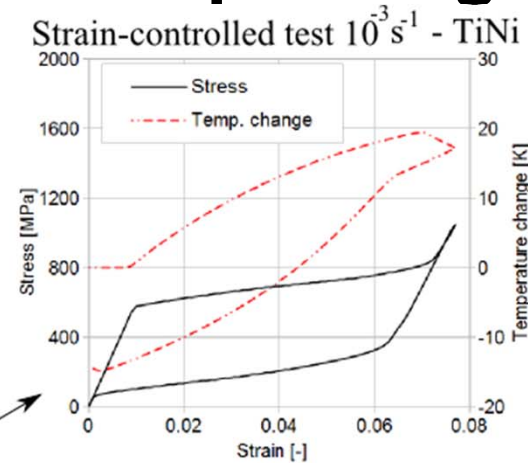
ThermoPlasticity

References:

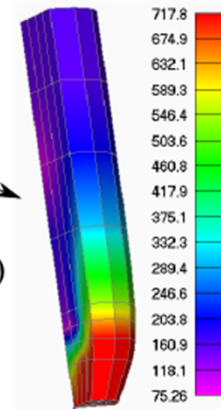
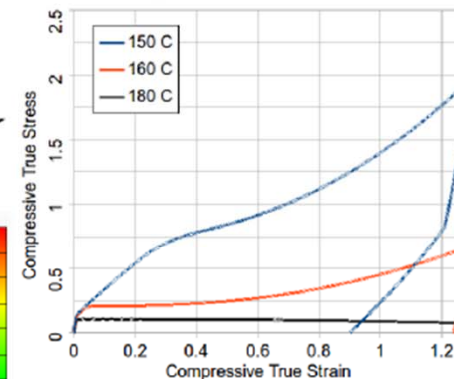
1. Dunić et al., 2014, *Smart Materials and Structures*, accepted for publication (IPPT Warsaw, Aichi Toyota)
2. Dunić et al., 2014, *Computers&Structures*, under review (TUBS, Wire, Braunschweig)

**UAB**

Universitat Autònoma de Barcelona



Compressive test Z690

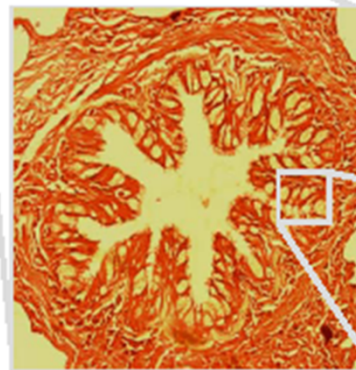


Thermally triggered necking of circular bar

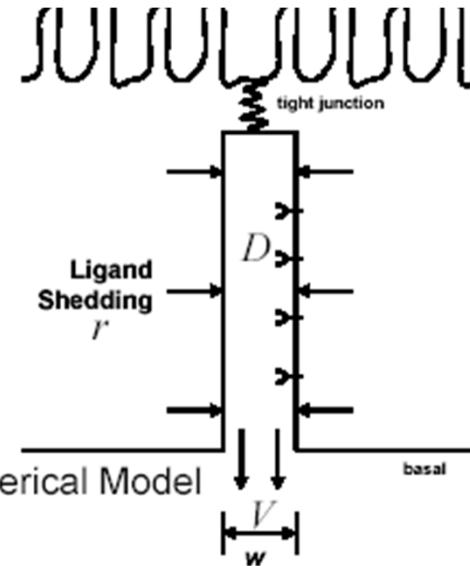
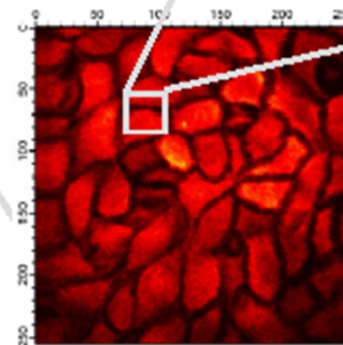
# Center for Bioengineering



Understand and Treat Disease by Understanding Hierarchical Mechanisms

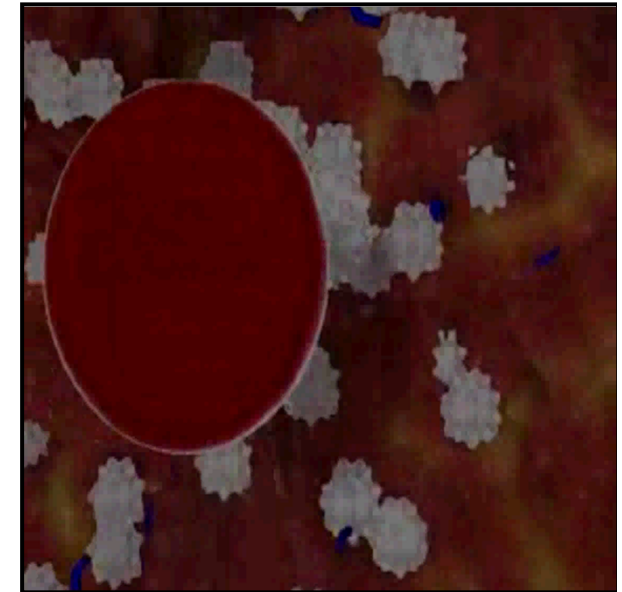
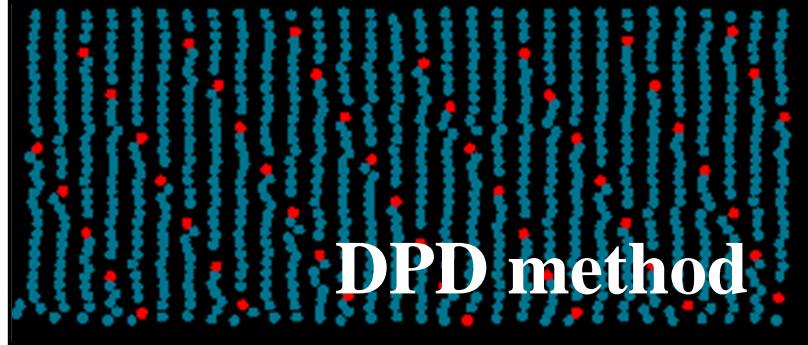


Bronchoconstriction mechanical stress

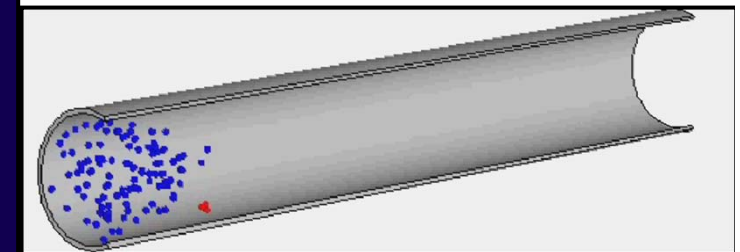
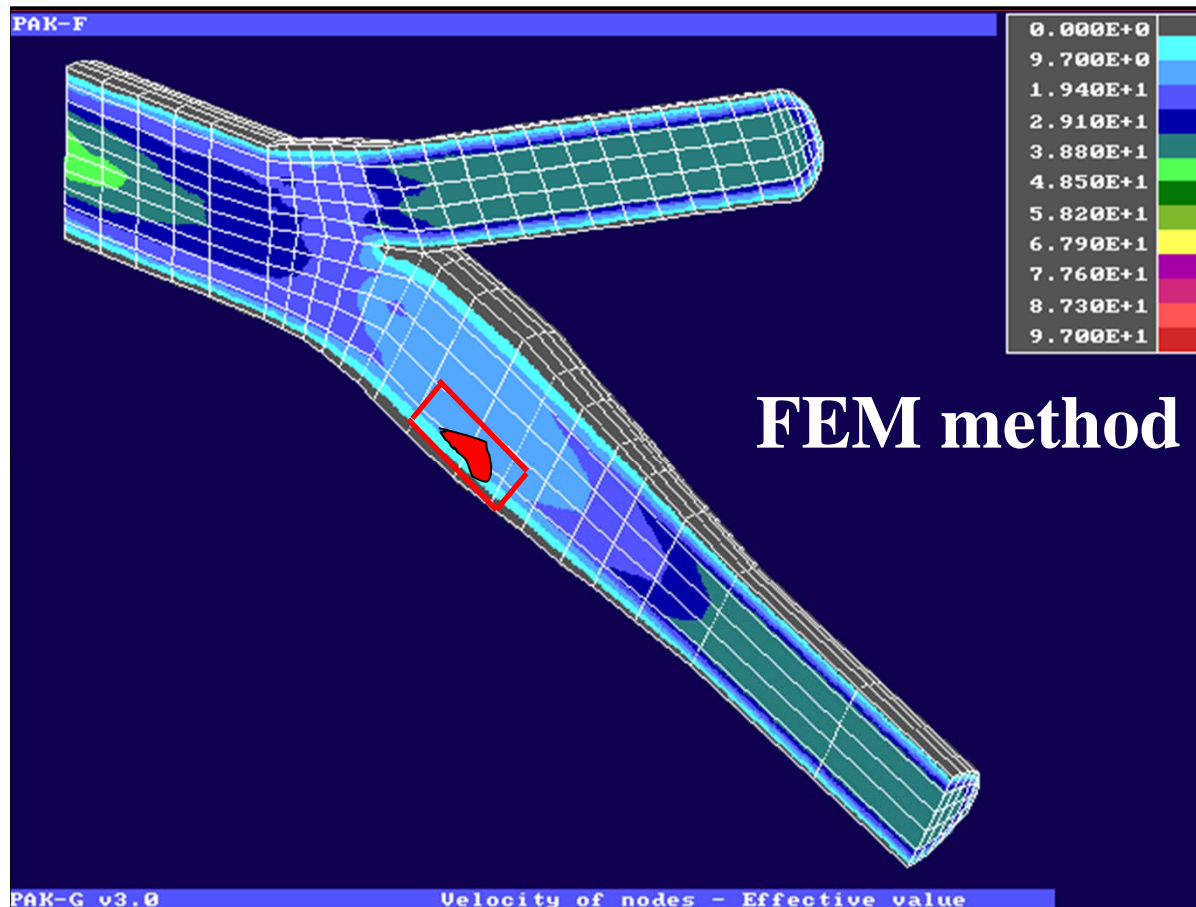


$$\frac{\partial C}{\partial t} = D \frac{\partial^2 C}{\partial x^2} + \frac{2r}{w} - V \frac{\partial C}{\partial x}$$

In vitro pressure LIS collapse

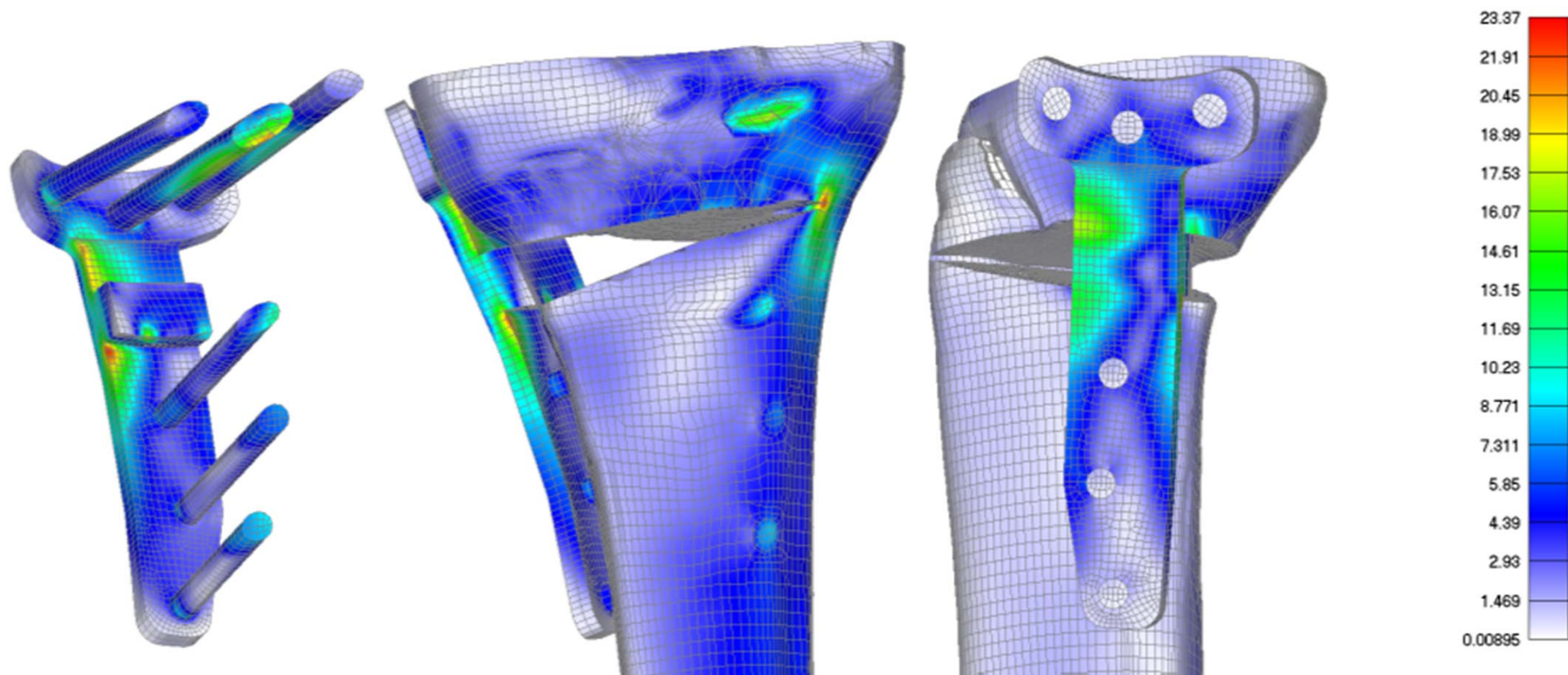


Thrombosis modeling



# Laboratory for Engineering Software

## FE Analysis of open wedge high tibia osteotomy



## Engineering services

Wagon Industry

Automotive  
Industry

Electric  
Industry

Water  
treatment

Dam  
analysis

Electric  
Power  
Industry

Measurements

Tool analysis

# Laboratory for Nanotribology



**Nanotribometer**



**AFM**



**SEM**



**Profilometer**



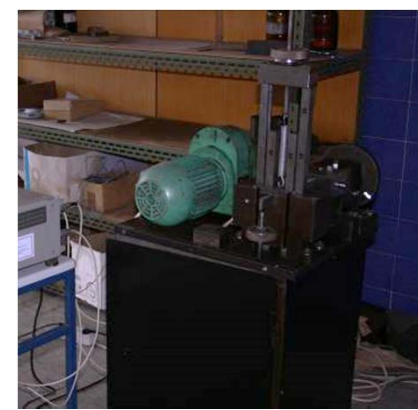
**Nano/micro-scratch**



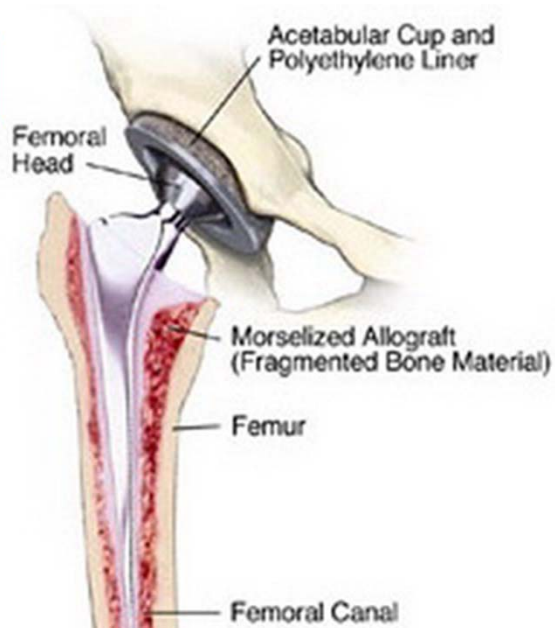
**Nano/micro indenter**



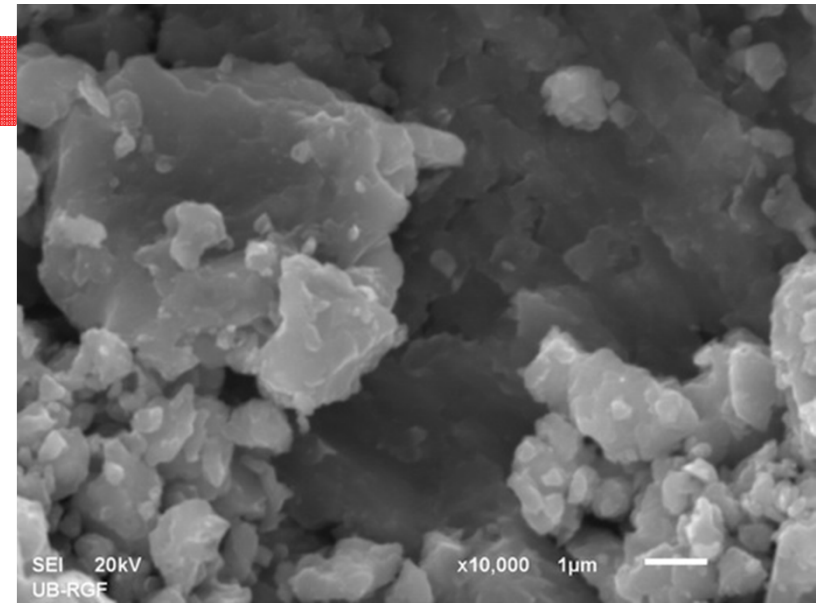
**Optical Microscope**



**Tribometer**

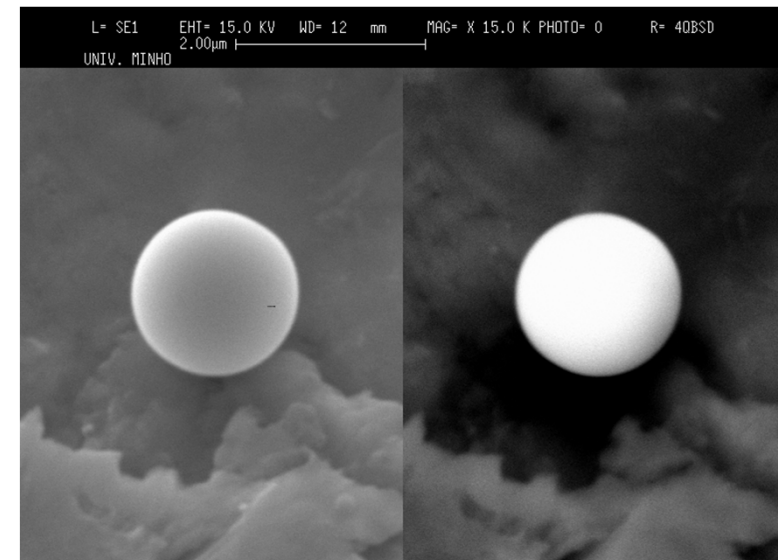
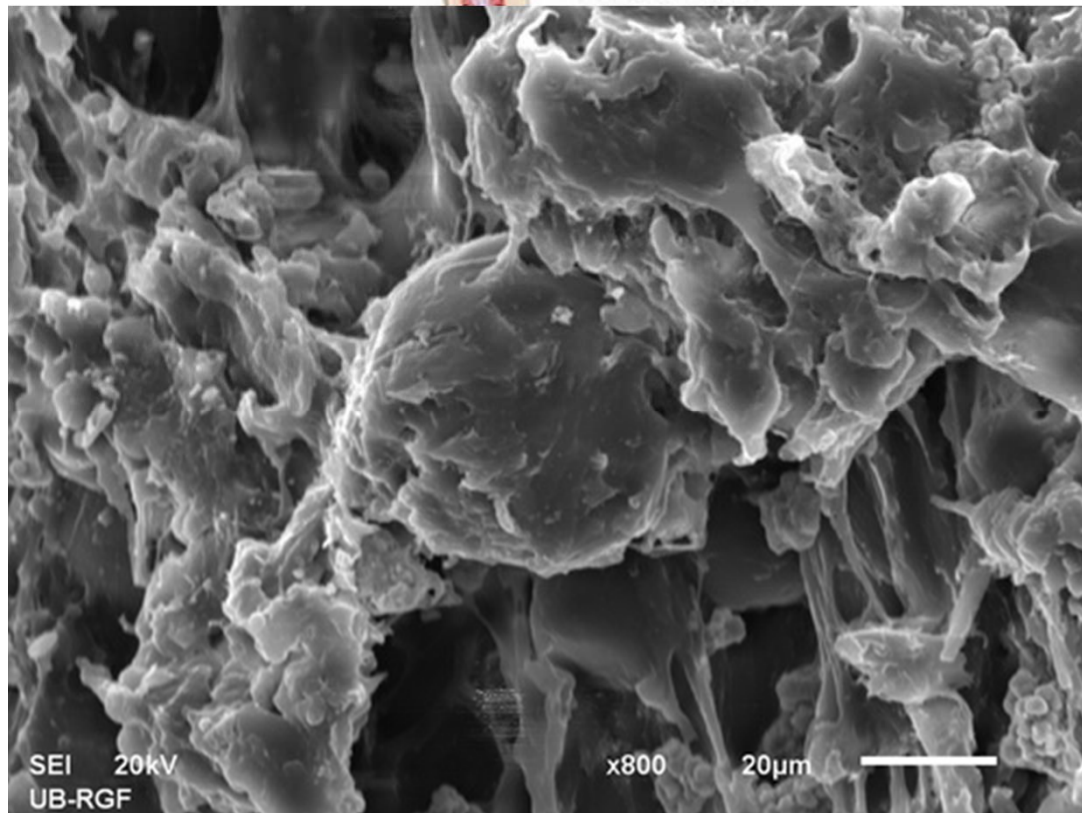


**PMMA**



**Ti6Al4V**

**Silver (Ag) nanoparticles on Ti6Al4V**



# Faculty of Engineering Kragujevac Team

- **CONTACT PERSON: Prof Dr Nenad Grujovic**, full professor, Head of Center for Information Technologies
  - Computer Engineering, Scaffolds engineering, Rapid Prototyping, FEM, CE Modeling, Business Systems
- **Dr Fatima Zivic**, research associate, Laboratory for Nanotribology
  - Nanotribology, Characterisation of Biomaterials, Nanotechnology, Optical imaging , Business Systems
- **Prof Dr Miroslav Zivkovic**, dean, full professor, Laboratory for Engineering Software
  - FEM modeling, FEM software development
- **Prof Dr Nebojsa Jovicic**, full professor
  - Energy savings, Waste management, Process technologies
- **Prof Dr Radovan Slavkovic**, full professor, Laboratory for Engineering Software
  - FEM modeling, FEM software development
- **Prof Dr Nenad Filipovic**, vice rector, full professor, Center for Bioengineering
  - FEM modeling in Bioengineering, FE, CFD, Fluid-structure interaction, MD, DPD
- **Prof Dr Slobodan Mitrovic**, associate professor, Laboratory for Nanotribology
  - Tribology of composites, Dental tribology/nanotribology, Machine tool design and development, Entrepreneurship

## Role in the project

- Assistance in Project coordination
- Coordination of PC partners
- PARTICIPATION IN ALL PROJECT ACTIVITIES