

MISSION

The Center of Excellence Research and Development in Numerical Modeling and Simulation was founded in 2011 by Lockheed Martin with participation by Siemens Industry Software based on the "Software Endowment Offset Project".

The Center is a multidisciplinary research center that provides a unique opportunity to develop novel research ideas that involve the government, private, and academic sectors.

OBJECTIVE

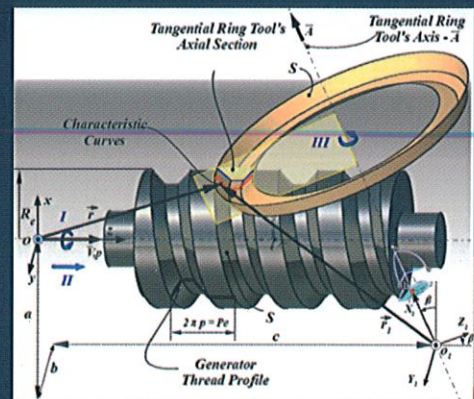
The strategic objective of the Center of Excellence is to become a focal point for scientists working on the development of advanced polymeric materials in South-Eastern Romania.

The goals of the Center of Excellence are to build a base of research that will significantly impact industrial practice and productivity through the application of advanced polymer and composite manufacturing technology.

RESEARCH AREAS

The center conducts research within these four areas:

- Numerical modeling of materials and manufacturing processes.
- Manufacturing design and product life cycle management.
- Manufacturing of polymers and polymer-based composites.
- Processing-structure-property relationships.



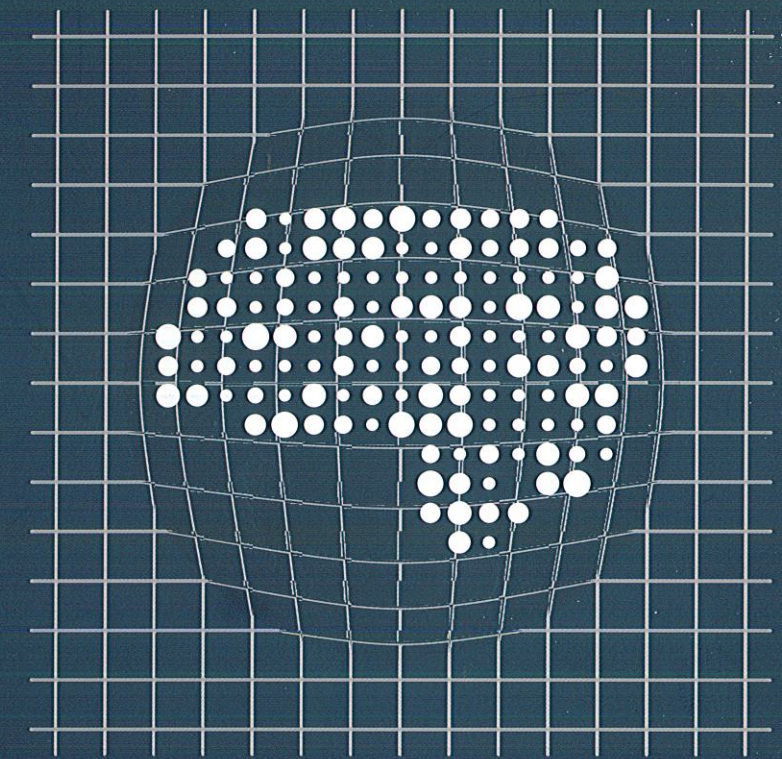
Research and Development in Numerical Modeling and Simulation



111 Domneasca Street, Galati, Romania
Tel. (+40) 336 130 214 ,
Fax. (+40) 236 314 463
E-mail: felicia.stan@ugal.ro
<http://www.mec.ugal.ro>

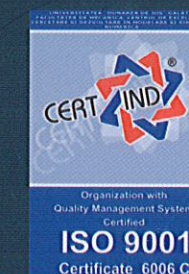


DUNAREA DE JOS UNIVERSITY OF GALATI
FACULTY OF MECHANICAL ENGINEERING



CE - C D M S N

Center of Excellence
Research and Development
in Numerical Modeling and Simulation



NUMERICAL

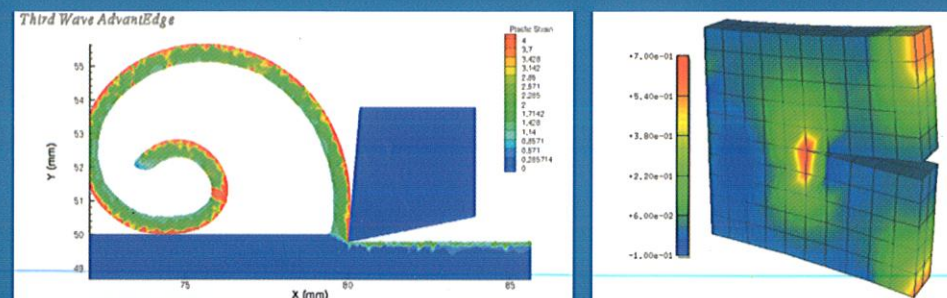
MODELING AND NUMERICAL SIMULATION LABORATORY

Research areas:

- Computer modeling and simulation of manufacturing processes.
- Manufacturing design and product life cycle management
- Numerical simulation of fracture phenomena in mechanical and technological processes.

Research facilities:

- Software and Licenses (academic & commercial perpetual): NX, NX Advanced, NASTRAN, Tecnomatix, Teamcenter, Autodesk Moldflow Insight 2011, ADVANTEDGE, MOLDEX 3D Hardware: 1 server DELL Power Edge 2900, 1 server HP Proliant ML 110 and 14 graphic stations HP Z400.



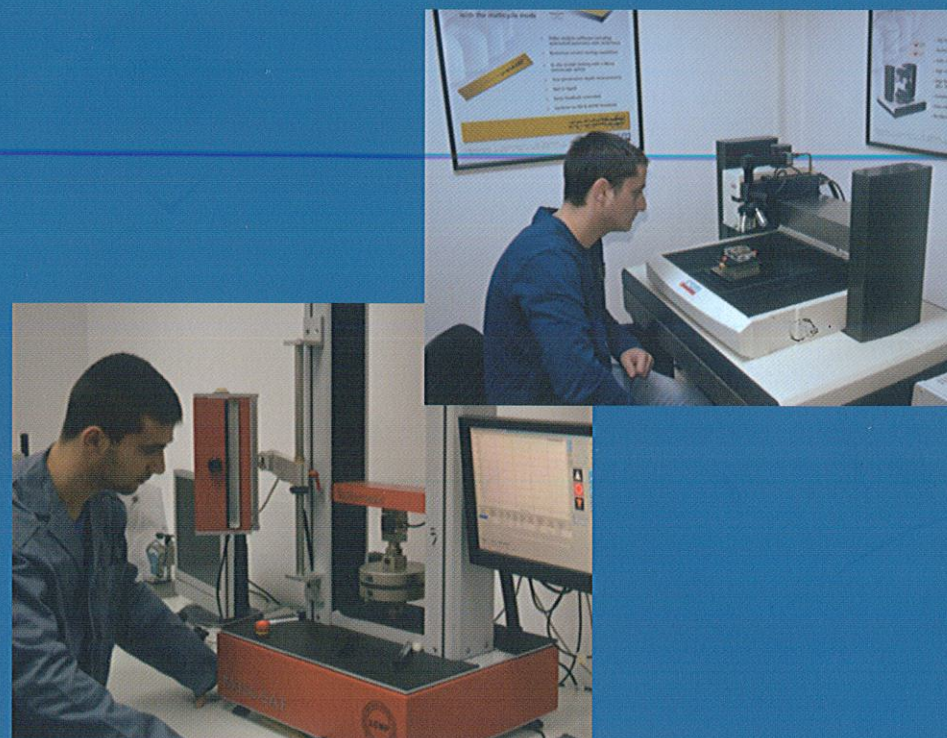
MODELING OF SURFACE GENERATION AND COMPUTER CONTROLLED MEASUREMENT LABORATORY

Research areas:

- Modeling of surface generation.
- Computer controlled measurement of manufactured surfaces.

Research facilities:

- TESA MICRO-HITE 3D DCC Coordinate Measuring Machine.
- Optical Profile Projector (Starlett Optical).
- Non-contact Video Measuring System, VMM-2010.



CENTER OF EXCELLENCE LABORATOIRES

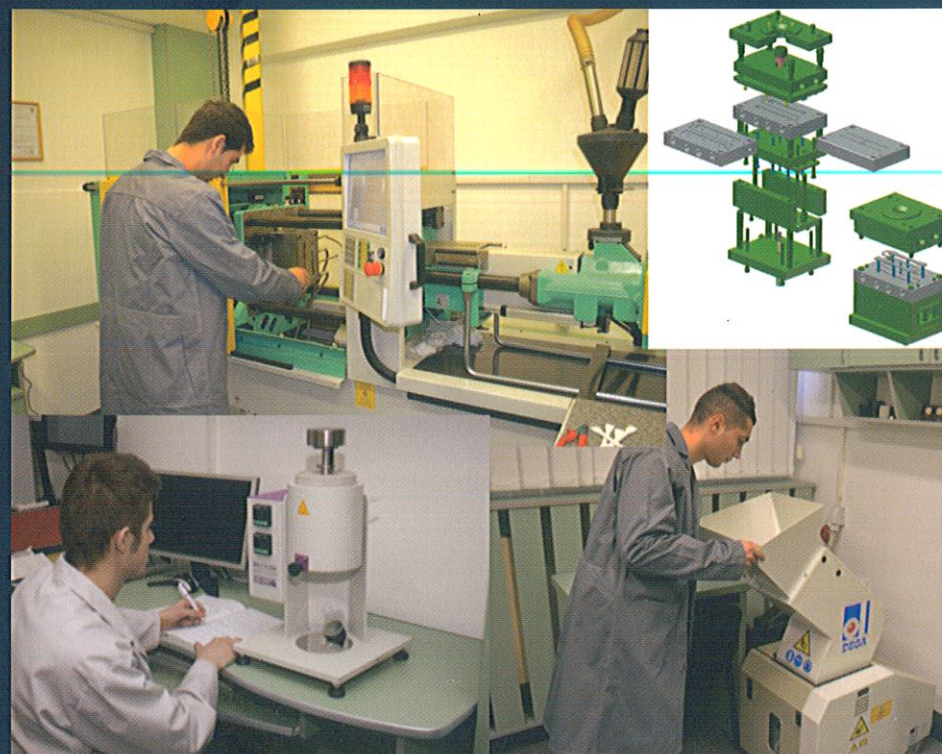
INDUSTRIAL PARTNERS

The Center has extensive interactions with industry, locally, nationally, and internationally. These collaborations provide direct support for research and an important educational component that introduces our students to career opportunities in industrial research:

- Renault Technologie Romane S.R.L.
- Plastic Technology Service (Romania)
- ADA Computers, Bucharest (Romania)
- ASPAPLAST, Bucharest (Romania)
- Plator S.A., Oradea (Romania)
- CEPROINV, Focsani (Romania)
- Prod Plast S.R.L., Galati (Romania)
- Tehnoton S.A., Iasi (Romania)
- INSTAELECTRIC SA, Focsani (Romania)
- Autodesk Manufacturing Division
- Meusburger Georg GmbH & Co (Switzerland)
- ARBURG GmbH & Co, (Germany)
- Tecseo SRL, Casoli (Italy)

ACADEMIC PARTNERS

- Tor Verga University of Rome, Italy
- University of Lyon INSA (France)
- ENSAM Paris (France)
- Nova University of Lisbon (Portugal)
- Minho University (Portugal)
- Catholic University of Leuven (Belgium)
- POLITEHNICA University, Bucharest (Romania)
- Gh. Asachi Technical University of Iasi (Romania)
- Technical University, Cluj Napoca (Romania)
- Polytechnic University of Timisoara (Romania)
- University of Oradea (Romania)
- Transilvania University of Brasov (Romania)
- University of Bacau (Romania)
- Stefan cel Mare University of Suceava



EXPERIMENTAL

POLYMERIC MATERIALS CHARACTERIZATION LABORATORY

Research areas:

- Mechanical, thermal and optical characterization of polymers and polymer-based composites.
- Micro/nano indentation and scratch of polymers and polymer-based composites
- Processing-structure-property relationships.

Research facilities:

- Universal testing machine TESTOMETRIC Model M350 – 5AT.
- Video-extensometer TESTOMETRIC and winTest software.
- TESTOMETRIC contact extensometer for COD Micro Combi Tester and Optical Microscope (CSM Instruments).
- High speed video camera AOS Technologies Stereomicroscope Olympus SZX10 and image analysis software.
- Hardness tester Shore DO Bareiss Prüfgeratebau GmbH.
- CEAST specimen preparation: Manual notchvis, Razor notch.
- Spectrophotometer CM-5 (Konica Minolta Optics, Inc.).
- METTLER TOLEDO AB204-S Analytical Balance (USA).

INJECTION MOLDING LABORATORY

Research areas:

- Fabrication, developing and processing of polymers and polymer-based composites.
- Design for injection molding and injection molded parts.
- Rheological characterization of polymers under processing conditions.
- Polymer recycle and evaluation of material performance.

Research facilities:

- Injecting molding machine ARBURG ALLROUNDER 320 C500 – 170.
- Drying system ARBURG, THERMOLIFT 100-2.
- Melt flow quick index CEAST (Instron) Model 7021-7022.
- Molds: Spiral molds for flow length measurement, disk mold for rheology tests, mold for PVT properties tests.
- KISTLER System for in-mold cavity measurements.

WEAR AND FATIGUE TESTING LABORATORY

Research areas:

- Multi-degradation mechanisms : tribology- fatigue-wear of polymeric materials used for hip prostheses.

Research facilities (in-house design):

- Hip fatigue/wear simulator in lubrication conditions.
- Hip joint simulator to determine the wear of acetabular cups under real loading conditions.
- Fatigue tester.

