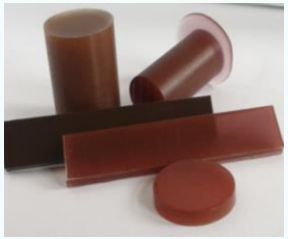
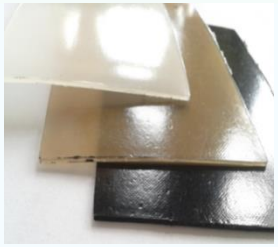
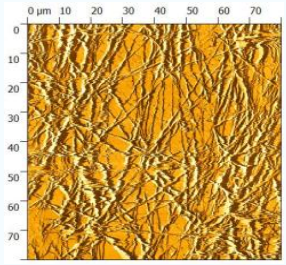
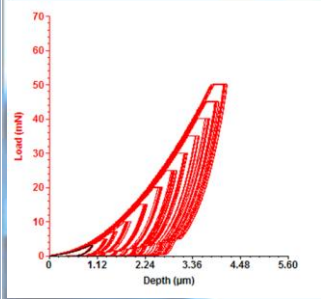
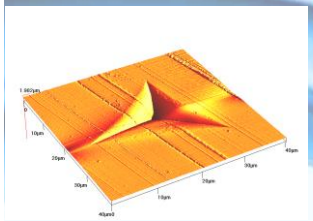
Nano Tech Lab Ltd.

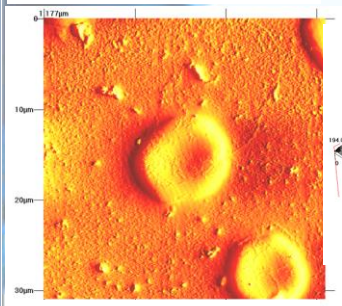


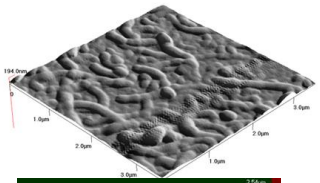


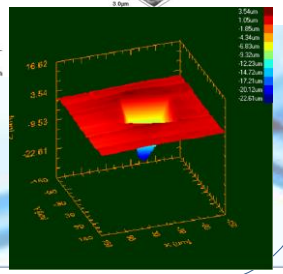


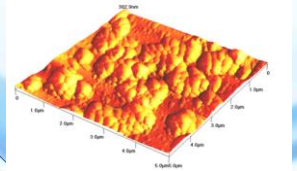


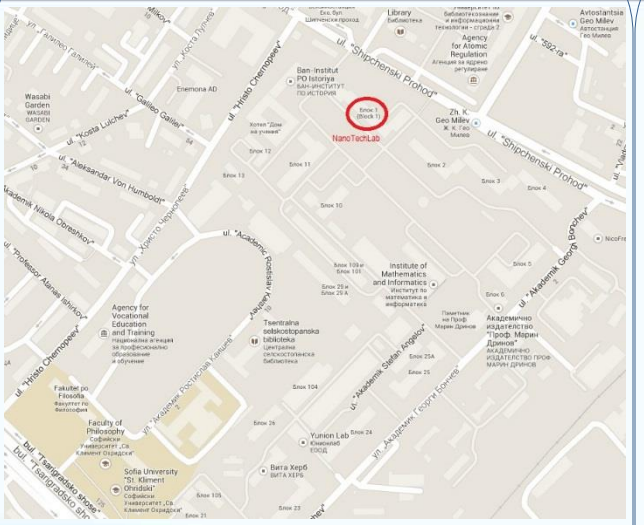












Address:
Acad. G. Bonchev Street, Block 4,
Room 405
1113 Sofia, Bulgaria

E-mail:
nanotechlab@nanotechlab.eu

Web site:
http://nanotechlab.eu

Phones:
+359 2 979 64 62
+359 2 979 64 81
+359 2 979 64 15

Contact Person:
Dr. Evgeni Ivanov
Manager

NanoTech Lab

Nano Tech Lab

Research & Development of Nanomaterials and Nanotechnologies Ltd.

FROM RESEARCH TO INDUSTRIAL NANOTECHNOLOGIES

Company Information:

Nano Tech Lab Ltd is a nanotechnology SME, established in 2013 as a spin-off of the Institute of Mechanics, Bulgarian Academy of Sciences. The main task is bridging the gap between the nanotechnology research and innovation, proof of concept, product validation, prototyping and commercialization.

NanoTechLab Ltd has experience in fabrication of polymer nanocomposites and their products based on graphene, carbon nanotubes, noble metal nanoparticles, clay and other nanofillers in engineering and bio-polymers. Nanocomposite processing techniques used are ultrasonically exfoliation, latex mixing, mechano-chemical milling, in-situ polymerization, extrusion.

As a technological innovative company, NanoTechLab Ltd is working on European Graphene Flagship project "Graphene-based revolutions in ICT and beyond".

NanoTechLab Ltd is an independent SME, located in Sofia, Bulgaria. Co-founders of the company are the Institute of Mechanics, Bulgarian Academy of Sciences and 6 researchers from the same institute.

The main activities of the company are:

- ✓ Research
- ✓ Development
- ✓ Manufacturing
- ✓ Prototyping
- ✓ Commercialization

of multifunctional polymer nanocomposites for application in additive manufacturing, prototyping of small details by 3D printing, production of coatings and thin films, electrospinning of composite nanofibers.

Our research and innovation activities are in the domain of nanocomposite products with lightweight, enhanced mechanical strength and elastic modulus, improved barrier properties, low wear and friction, good thermal stability, high electrical conductivity and electromagnetic shielding efficiency, antimicrobial activity.

Projects

As an innovative SME, NanoTechLab Ltd is a partner in two large European projects supported by the European Commission.

The first one is funded by the Seven Framework Program (2014-2016): FP7-ICT-60439-Graphene FET Flagship "Graphene-Based Revolutions in ICT and Beyond".

The second project is the H2020: Graphene Core 1 (2016-2018) http://graphene-flagship.eu/

The working area is related with fabrication and characterization of graphene-based materials for electronics devices, process technology, technology assessment and definition of specification.

NanoTechLab Ltd is able to contribute markedly in national and international projects, to bring up the research ideas from the Technology Readiness Levels TRL 1-3 (basic idea and proof of concept) to TRL 4-6 (technology validation and prototype demonstration).

Products & Services

- ✓ Nanodispersions
- ✓ Polymer Nanocomposites
- ✓ Nanocomposite Functional Coatings
- ✓ Nanocomposite materials for 3D printing application (FDM filament and SLS composite powder)
- ✓ Prototyping of small details by 3D printing
- ✓ Elecrtospinning nanofibers based on polymers and nanocomposites
- ✓ Nanomaterials characterization – mechanical properties, thermal properties, surface scan and roughness

NanoTests

Nano Tech Lab Ltd has access to the research infrastructure of the Institute of Mechanics (Laboratory OLEM) for mechanical properties characterization of nanomaterials at macro, micro and nano-scale, rheology and thermal analysis.

NanoTechLab Ltd. provides materials characterization according to international standards ISO, ASTM and DIN:

- ✓ Nano Indentation with Berkovich indenter: nano hardness, Young's modulus.
- ✓ Nano Indentation with the pin of Atom Force Microscopy cantilever applied to fine films and biological materials.
- ✓ Micro Indentation and Scratch: micro hardness (Vickers and Rockwell), Young's modulus, micro scratch, adhesion to the substrate and delamination of coatings. Nanoscratch test with Diamond Stylus.
- ✓ Tribology: friction and wear, coefficient of friction by using standard tests: "block on flat", and "pin/ball on disk".
- ✓ Macro Mechanical tests: deformation and fracture; strength (in tensile, bending, torsion and compressive mode); Young's modulus; fatigue; creep and relaxation; stiffness, toughness, elasticity; plasticity.
- ✓ Atom Force Microscopy tests – phase analysis, surface roughness.
- ✓ Optical microscope characterization of materials - transmission mode.
- ✓ Rheology of liquids (wide viscosity range) - low viscosity liquids, polymer melts, dispersions and pastes, oils, paints, adhesives, bio-medical materials, dental materials, cosmetics & pharmaceutics.
- ✓ Rheology of Solids – thermomechanical analysis (DMTA in torsion).
- ✓ Thermal analysis - Differential Scanning Calorimetry (DSC) and Thermogravimetry (TGA, DTA).