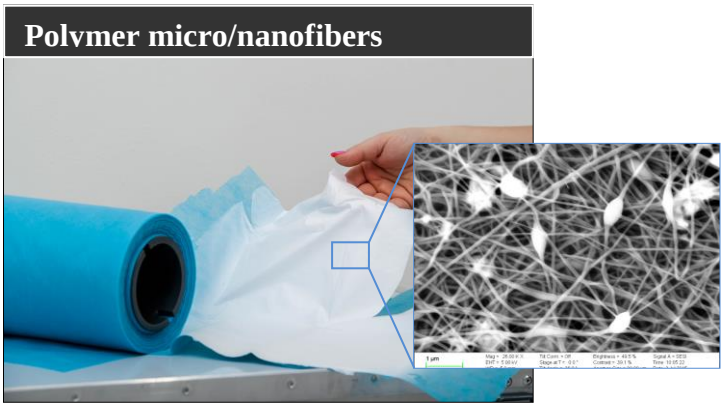
Nanotechnological laboratory

Erika Múdra, Ph.D., Institute of materials research SAS, emudra@saske.sk

Nanospider™ NS LAB:
is the device, which enables production of continuous random or aligned webs of fibers with different web area weight and different fiber diameters. It allows electrospinning of a wide range of materials (different types of polymers, including bio-materials), using various substrates. Composite polymer/inorganic fibers are used as the precursors of ceramic micro/nanofibers.



Micro/nanofiber parameters:
Diameters: 50 - 700 nm (+/-30 %)
Length: significant
Fibers: continuous, uniform

Web parameters:
Web area weight: from 0.03 g/m^2
Web thickness: 1 - 500 µm
Effective width: 250 - 350 mm

Example of production of micro/nanofibers:
Polymers: PVA, PA-6, PAN, PUR, PEO, PVP...
Ceramics: Al_2O_3, carbon nanofibers, $La_{1/3}TaO_3$, TiO_2, SnO_2...
Biomaterials: chitosan, collagen, PLA, PCL, HA...

Applications of electrospun micro/nanofibers: