

Investigation of the rheological properties of amorphous, filled and semi-crystalline elastomers

supervisor: M.Sc. M. Redel, michael.redel@fau.de;
Prof. Dr. Dirk W. Schubert

topic:

- Characterisation of the rheological properties of filled elastomers.
- Investigation of the filler-polymer interaction
- Comparison with rheological properties of semi-crystalline elastomers

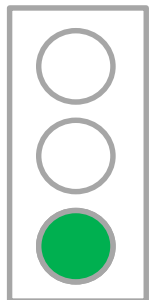


Ziele:

Comparison of the properties of amorphous and semi-crystalline elastomers
Detect influence of crystalline areas on measurability

start: From now onward

status



Benchmark of two fibre spinning plants

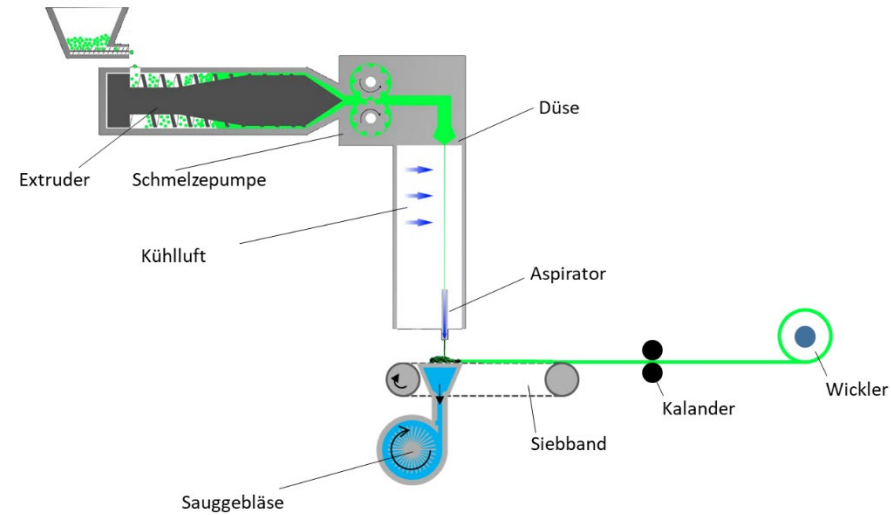
supervisor: M.Sc. A. Bier, alexander.bier@fau.de;
 Prof. Dr. Dirk W. Schubert

topic:

- Investigation of PP web samples from two fibre spinning plants
- Comparison of the mech. properties with the same choice of parameters
- Investigation of the crystallinity

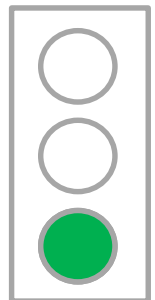
aim:

Comparison of fibre spinning plants
 Optimisation of the process parameters



start: From now onward

status

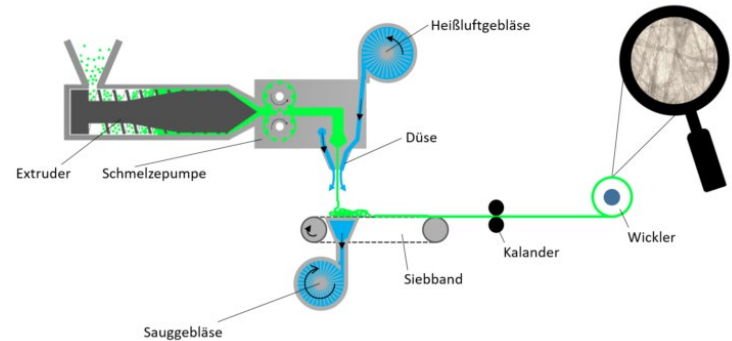


Charakterisierung von Meltblown-Vliesstoffen aus Polylactid

supervisor: M.Sc. R. Halamicek, robin.halamicek@fau.de;
Prof. Dr. D.W. Schubert

topic:

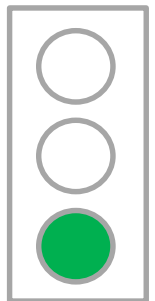
- Investigation of two different polylactides
- Characterisation of nonwoven properties
 - Optical
 - Thermal
- Evaluation of optical measurement methods to determine the fibre diameter
- Optional: Comparison of uncalendered and calendered nonwovens



aim:

- Influence of different process parameters on nonwoven properties
- Better understanding in the optical determination of fibre diameter

status



start: From now onward

Fabrication and characterization of TPU/AgNWs flexible strain sensors

supervisor: M.Sc. X. Wang, xin.wang@fau.de;

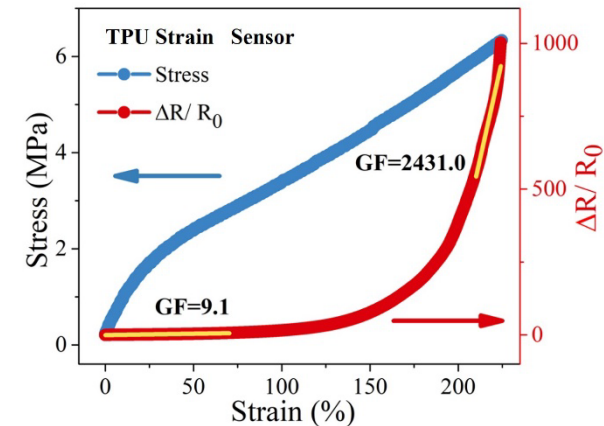
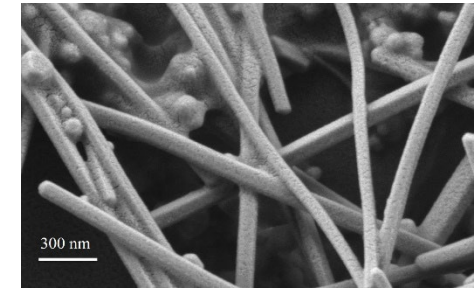
Prof. Dr. D.W. Schubert

main topics:

- Laboratory preparation of high sensitive TPU/AgNWs flexible strain sensor.
- Testing and research of mechanical properties, electrical conductivity, and strain response properties of TPU/AgNWs sensor

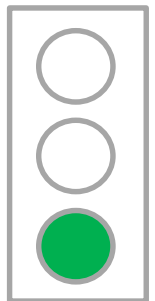
aim:

- Effect of temperature on laboratory preparation of Ag/NWs
- Based on the experimental results, fitting and explaining the strain response ability of sensor



start: From now onward

status



Dispergierbarkeit von Nanopartikeln mit unterschiedlicher Oberflächenfunktionalisierung

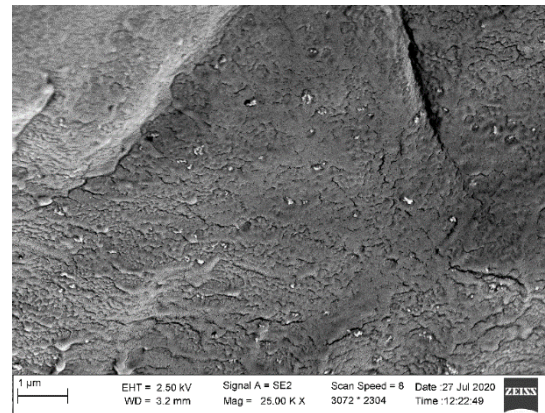
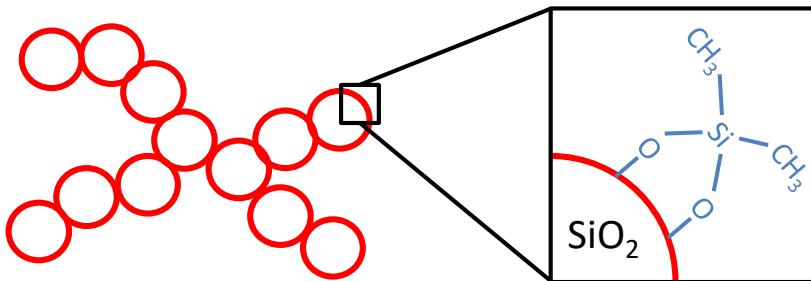
supervisor: S. Werner, M.Sc., siegfried.werner@fau.de
Dr. Joachim Kaschta

topic:

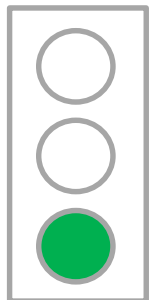
- Production of nanocomposites by means of internal mixers
- Analysis of the dispersion by means of light and electron microscopy
- Automated evaluation of the dispersion by means of image processing software

aim:

Analysis of particle size distribution with time and other process parameters
Determination of the functionalisation for the best possible dispersion



status



start: From now onward

Charakterisierung der dehrheologischen Eigenschaften von Hydrogelen für die Biofabrikation

supervisor: M.Sc. Stefan Schrüfer, stefan.schruefer@fau.de;
Prof. Dr. Dirk W. Schubert

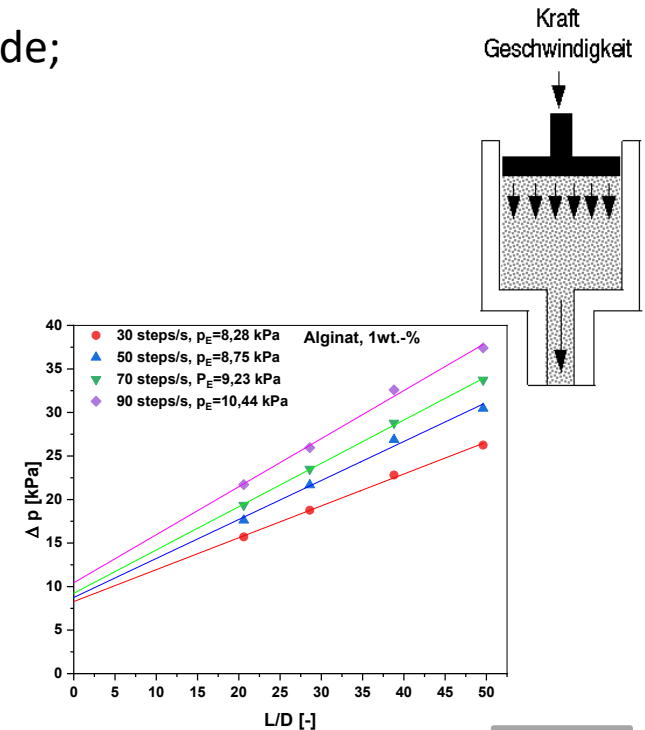
topic:

- Comparison of the determined shear rheological material properties from capillary and shear rheometer
- Determination of the inlet pressure loss as a function of the needle geometry used
- Calculation of the extensional rheological material properties

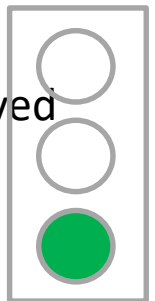
aim:

Determination of the extensional rheological properties of biomaterials for improved correlation of material properties and relevant process variables of biofabrication (pressure result, cell proliferation...)

start: From now onward



status



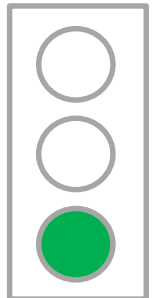
Supervisor: M.Sc. Muhammad Azeem Munawar, muhammad.munawar@fau.de;
Raum 1.76; 09131-85-27741

Aims:

- To fabricate of biopolymer based hydrogels by coupling solution casting method and electrospinning process.
- To set up a structure property relationship of used biomaterials.
- The characterization includes the following techniques;
- Degree of Swelling, Biodegradability, Cytotoxicity with additional techniques like Fourier transform infrared spectroscopy (FTIR), Thermogravimetric analysis (TGA), Differential scanning calorimetric analysis (DSC), Scanning electron microscopy (SEM).

Start: From now onwards

status

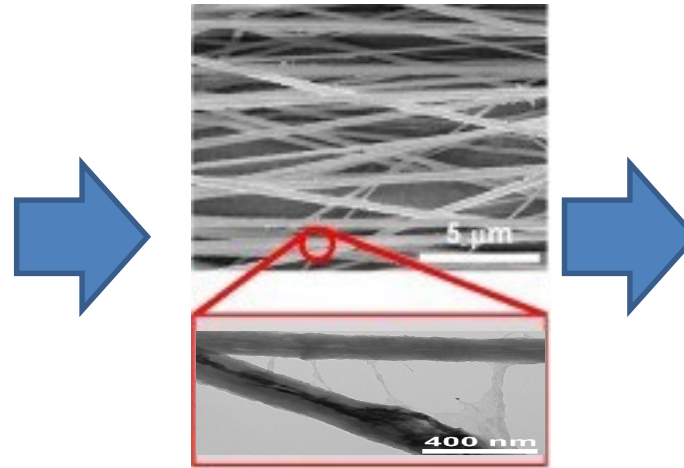
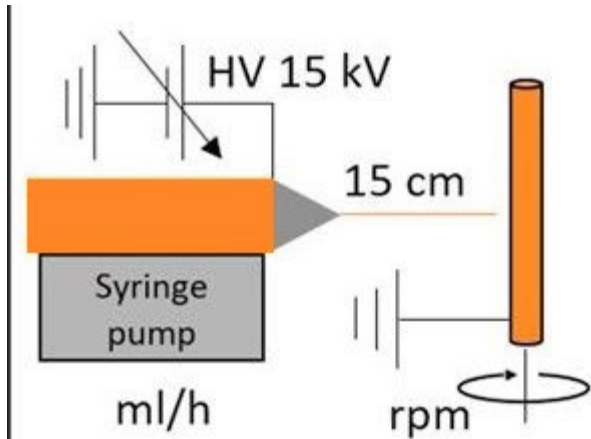


Mechanical performances of electrospun nanofibers of biopolymers

Supervisor: M.Sc. Muhammad Azeem Munawar, muhammad.munawar@fau.de;
Raum 1.76; 09131-85-27741

Aim:

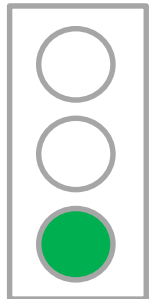
- Fabrication of electrospun nanofibers of different biodegradable polymers for biomedical applications



Characterizations:

- Tensile testing
- SEM/TEM analysis
- DSC analysis

status



Start: From now onward