Recent advances in functionalized plastic materials, bio-based materials and additive manufacturing

11.9.2019, Kokkola

Centria
UNIVERSITY OF APPLIED SCIENCES

Program

09:40 - 10:00	Merie Kannampuzha, MUOVA, Vaasa University of Applied Sciences **Eco-innovations to drive sustainable development of companies**
	Session: Functionalized plastic materials and biocomposites
10:00 - 10:20	Rathish Rajan, Centria University of Applied Sciences **Biocomposites and carbon nanomaterials filled hybrid composites**
10:20 - 10:50	Kosti Rämö, Premix Oy **Creating a safe and ultra-connected society with functional plastics**
	Break
11:05 - 11:25	Guan Gong, RISE SICOMP **Potential, status, challenge and inspiration of nano-modified polymer composites**
11:25 – 11:45	Zainab Al-Maqdasi, Luleå University of Technology **Towards multifunctional bio-based composites**
11:45 - 12:05	Simo Huhtanen, Tampere University/Centria UAS **Thermally conductive plastic and their applications**
	Lunch Break
	Session: Additive manufacturing
13:15 - 13:45	Niklas Kretzschmar, Aalto University **Emerging trends in 3D printing of plastic materials**
13:45 – 14:15	Jonas Eklöf, UPM Oy **Large scale 3D-printing and applications**
14:15 – 14:35	Tomi Kalpio, 3D Tech Oy **Brinter - Printing Biomaterials, layer by layer - Case Novum**
	Break
14:50 - 15:10	Tero Köyhäjoki, Centria University of Applied Sciences **Pellet extrusion 3D printing with robots**
15:10 - 15:30	Demonstration of 3D printing technologies

Interreg Botnia-Atlantica
EUROPEISKA UNIONEN Europeiska regionala utvecklingsfonden

Österbottens förbund
Pohjanmaan liitto

region västerbotten

Interreg Nord
European Regional Development Fund
EUROPEAN UNION

LAPIN LIITTO

REGION NORRBOTTEN

Centria
UNIVERSITY OF APPLIED SCIENCES


Centria
RESEARCH AND DEVELOPMENT
Your partner in research and development
KARVI
AUDITOITU

Centria's R&D key figures 2018

R&D staff
105

Projects
115

External financing share
5,6M€

Foreign funding share
1,2M€

International projects
26

Total volume of R&D activities
8,6M€

Share of service activities
1,6M€

Centria
RESEARCH AND DEVELOPMENT

R&D priorities

- Digitalisation
- Chemistry and bio-economy
- Production technology
- Entrepreneurship and welfare

Production technologies

machinery and metal industries, wood and building technologies, surface treatment, robotics, automation, lean and quality.

Chemistry and bioeconomy

biomass, valuable substances, industrial symbiosis, new materials, composites, chemical analytics and renewable energy.

Digitalisation

cloud services,
industrial internet, big data, virtual reality, information security and software development, 5G, etc.

Entrepreneurship and wellbeing

service design, entrepreneurial education, green care know-how, online pedagogy.

Centria
RESEARCH AND DEVELOPMENT

Composite technology and material laboratory

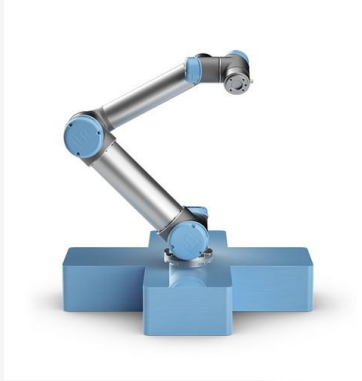
Materials

- formulation of thermoplastic and thermoset matrix
- electroconductive and thermally conductive polymer matrix composites
- cellulose fibre, short and continuous, reinforced composites
- formulation of coatings

Production technologies

- pellet 3D printing technology development
- robotization of 3D printing
- compounding of thermoplastics
- coating technology

Recycling of Composites and LCA



Tools: *Pilot-scale compounder, light RTM, 3D printing (FFF, MJP, universal robot), pilot scale wood coating line, corona spray gun*

Centria
RESEARCH AND DEVELOPMENT

Material Research and Testing

- **Compositional analysis** for determining e.g. organic and/or inorganic impurities, formulations of unknown materials, etc.
- **Thermal characteristics** of materials, temperatures and heat of change of melting and crystallization, thermal stability, glass transition temperature, calorific value, mechanical performance of components at various temperatures, etc.
- **Electrical and magnetic properties of materials**
- **Structural analysis,** e.g. rheology of various pastes used in electronic industry, surface free energy of materials, salt/oxide structure, surface quality (damage, microcracks, etc), etc.
- **Mechanical testing**, e.g. tensile strength, Vickers hardness, abrasion resistance, resistance to vibration, etc.
- **Environmental and corrosion testing** for evaluation ageing of materials.

Centria
RESEARCH AND DEVELOPMENT

Thank you for your interest!

egidija.rainosalo@centria.fi
+358 447250264

www.centria.fi/tki

Centria
RESEARCH AND DEVELOPMENT

Enjoy the seminar!