SKOLTECH TRANSLATIONAL RESEARCH AND INNOVATION PROGRAM

DEMO DAY

DECEMBER 10, 2019

SKOLTECH, NEW CAMPUS

09:30-10:00	**Registration and coffee-break**
10:00-10:10	**Opening Remarks**
10:10-10:30	Platform for Detection of Human Health Markers at Point-of-Care (POC): An Interface of the Physical and Life Sciences, *Dmitry Gorin* The project is focused on developing a low-cost "lab-on-a-chip" device for high-throughput point-of-care diagnostics of cancer on the earliest stage. The technique is based on analysis of extracellular vesicles (exosomes) present in biological fluids and containing fingerprints of patient condition using photonic tools, for example Raman spectroscopy.
10:30-10:50	Metagenomic approach for oil and gas industry, *Arsenii Pozdyshev* The aim of the project is to develop a technology of «genomic logging», which could be carried out in the process of development of oil and gas fields. The global goal of the project is to create a fundamentally new approach to geological research, which will at the same time be highly accurate and easy to implement and will replace most of the technologies that are used today.
10:50-11:10	Development of potassium-ion batteries, *Artem Abakumov* The aim of the project is to develop a novel Li-free system for electrochemical energy storage. Substitution of expensive lithium to potassium, same as absence of rare metals in cathode structure will lead to a significant decrease in prime cost of the battery cell. This concept can be considered as an attractive solution for industry of stationary storage systems.
11:10-11:30	Pultrusion structural profiles based on fibre reinforced thermoplastic pre-impregnated materials, *Alexander Safonov* This project is devoted to development of pultrusion technology for production of structural profiles based on fibre reinforced thermoplastic pre-impregnated materials. Composites with thermoplastic matrices offer increased fracture toughness, higher damage tolerance, short processing cycle times and excellent environmental stability.
11:30-11:50	Strong coaxial filament for 3D printing, *Eugene Shulga* The main idea of the project is to create a technology for obtaining a durable coaxial composite filament for 3D printers working on the principle of the fused layer deposition (FDM). The unique bi-layer structure of the filament allows us to combine high strength and low shrinkage properties of the core, reinforced with short carbon or glass fibers, with reduced abrasiveness and lower hygroscopicity of the outer layer.
11:50-12:10	Syntelly – Computer aided organic synthesis, *Maxim Fedorov* Syntelly is computer-aided organic synthesis software based on deep learning techniques. Software will assist chemists both to optimize strategies of multi-stage synthesis and to find the optimal conditions of organic reactions.
12:10-12:30	G(ame)-psycho, *Andrey Somov* (G)-psycho project aims at developing an analytical and prediction system for cyber athletes. The system will ensure the understanding of psycho-emotional conditions of the athletes using wearables, context/game data and artificial intelligence.
12:30-13:00	**Closing remarks and coffee-break**