LITHUANIAN ENERGY INSTITUTE

ADMISSION TO PHD STUDIES FOR THE YEAR 2026

DOCTORAL RESEARCH TOPIC:

Numerical investigation of granulated biofuel dynamics and chemical conversion processes by Discrete Elements Method

RESEARCH FIELD:

Energetics and Power Engineering (T 006)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

Understanding of particles dynamics is extremely important for understanding and management, for example, bulk materials that are diverse, large, and applied very widely: granular fuel eco-friendly and economical combustion; packed bed thermal, including latent heat, energy storage systems; pebble-bed nuclear reactors; chemical industry; transportation and storage of flour and cereals; particle separation, mixing, stratification/segregation; granulation; concrete, asphalt and the like.

A multi-particle system dynamics is simulated by Discrete Elements Method (DEM) that is calculated directly for each particle according to the classical mechanical equations. Knowing the force acting on each particle and its location, allows to assess more accurately the mechanical and chemical processes of particles in and around the environment, mixing and separation of bulk materials, and particles interaction with the surrounding fluid.

The aim of the research is numerical research of granular mater: dynamics, and heat-mass transfer and chemical conversion processes, and estimate granular matter internal structures, and application of the obtained results to the construction and improvement of industrial facilities.

The research team offering these topics has over 25 years of experience in the field, so they are ready to assist, advice, and motivate.

Young scientists interested in pursuing doctoral studies in these areas are encouraged to contact the project supervisor for further information.

SCIENTIFIC SUPERVISOR:

Dr. Algis Džiugys
Laboratory of Materials Research and Testing

Lithuanian Energy Institute
Breslaujos 3, 44403 Kaunas
Lithuania

Algis.Dziugys@lei.lt

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