



“Technologists create and offer constructors ever newer materials and their modifications that can be used in an infinite number of combinations for the creation of composite materials. Thus, producers are faced with the problem of finding an optimum combination of components and the technology of creating composite materials for a given product without wasting time and resources. Choosing an improper material may damage the performance of the product or result in an unpredictable collapse. A group of young and highly-qualified researchers has been set up in order to attain the objectives of the project, which will do outstanding work on an international level in solving problems in materials science and mechanics that are urgent for Latvia. The research group will actively work to offer the Latvian and European Union economies new methods of scientifically justified creation of composite materials and products thereof, the use of these materials in reinforcing existing structures, the creation of environmentally friendly materials from natural fibres and recycled polymers, and the prediction of the properties of a given product for its entire service life. The focus will be on the use of commodities produced in Latvia – clay, flax, and concrete components – in sustainable and science-based solutions for the development of new, economically and ecologically efficient materials through studying their mechanical characteristics and developing models that will serve as the basis for possible innovative production thereafter.”

Project Manager Dr.habil.sc.ing.Juris Jansons



Aim of the Project

Involvement of human resources in complex research on modern composite materials at the “Institute of Polymer Mechanics of the University of Latvia”; development of a scientific basis for the design, manufacture and application of modern composite materials which will encourage innovation-based development of the national economy of Latvia in a sustainable manner.

Activities of the Project

- Research on building structures reinforced with composite materials.
- Research on cellulose fibres and composite materials thereof.
- Research on disperse-filled polymer composite materials.

Results of the Project

- Development of laboratory methodology for the monitoring of building structures reinforced with composite materials.
- Development of a model of the emergence and development of cracks in building structures reinforced with composite materials.
- Development of a model of composite-reinforced concrete.
- Systematisation of a set of data on cellulose fibres and mechanical properties of cellulose fibre composites.
- Development of models for the description, prediction and optimisation of mechanical properties of cellulose fibres and composites thereof.
- Systematisation of a set of data on the mechanical and physical properties of disperse-filled polymer composite materials.

All the latest news on the project!

www.pmi.lv



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The agency "Institute of Polymer Mechanics of the University of Latvia" was established in 1963. The agency has been granted more than 270 inventor certificates and patents. It has wide experience in various research projects: theoretical and experimental research on the deformation and failure of materials; mechanics, numerical calculation and optimisation of composite structures; prediction of the durability of materials and the environmental influence on their service characteristics; and methods of non-destruction testing of physicomaterial properties of materials.

European Social Fund Project "Involvement of Human Resources in Complex Research on Modern Composite Materials"

Project administrator:
**University of Latvia agency
"Institute of Polymer Mechanics
of the University of Latvia"**

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IEGULDĪJUMS TAVĀ NĀKOTNĒ