



LABORATORY OF MATERIALS RESEARCH

ABOUT LABORATORY

The Laboratory of Materials Research is a subdivision of the Institute of Mechanical Science of the Faculty of Mechanics, established in 2017. Since its establishment, the Institute has provided scientific, technical and expert support to the Lithuanian State Nuclear Safety Inspectorate, Lithuanian legal institutions, insurance companies, companies and institutions subordinate to the Ministry of Economy of the Republic of Lithuania, Lithuanian business and industry.

The Institute was also active in the field of vocational training. Since 2007, the Institute has acquired the status of a recognised International Institute of Welding (IIW) Welding Personnel Training Centre (ATB). This VILNIUS TECH training centre has been accredited and is still supervised by the Slovenian ANB. These activities are still successfully carried out in the laboratory, where several categories of welding professionals are periodically trained and certified according to the approved IIW training programmes: International Welding Engineers (IWE) and International Welding Technologists (IWT). As part of the expanding scope of activities, since 2013 the laboratory, in cooperation with the Slovenian Welding Institute (IZV), has been training non-destructive testing specialists in accordance with the requirements of the EN ISO 9712 standard and the PED Directive under the approved training programmes. Participants of the training receive qualifications and certificates in accordance with EN ISO 9712 and PED directives. The experts of the laboratory are members of the Technical Committee 41 of the Technical Committee "Welding and Materials Engineering" of the Lithuanian Standardisation Department, members of the Technical Committee 63 of the Technical Committee "Gas cylinders and cryogenic vessels". The Laboratory staff is actively involved in the development and validation of technical normative documentation in the field of welding and material science in Lithuania.

The Materials Research Laboratory has microscopy, chemical analysis, mechanical testing, non-destructive testing and technological equipment. The scientific work is coordinated by the Head of the Laboratory by forming temporary scientific teams of specialists from the relevant

material science, mechanical, industrial or welding engineering field of VILNIUS TECH to carry out scientific, commissioned and expert work.

Assoc. Prof. Dr. Nikolaj Višniakov was appointed as Head of the Laboratory in 2017.

RESEARCH AND INNOVATION

- Research of Advanced Electrotechnical Materials;
- Investigations of structural metallic and non-metallic materials;
- Research of Polymers and composite materials;
- Development of coatings, welding, heat treatment technologies.

LABORATORY CONTACTS

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SERVICES

- Consultancy on welding of various metals, heat treatment of metals;
- Development of welding technologies;
- Analysis and preparation of normative documentation for welding technologies;
- Design and modelling of welded structures and welded joints using finite element and other calculation methods;
- Investigation of the causes of failure of machinery and welded structures;
- Inspection and non-destructive testing of welded structures;
- Chemical analysis of various metals;
- Consultancy on the application of EN and ISO basic welding standards;
- Mechanical testing and microscopic examination of materials and welded joints and materials

For the terms and conditions of these services, please contact us on weekdays by phone +370 5 2745053, by fax +370 5 2744740 or by e-mail: nikolaj.visniakov@vilniustech.lt

PROJECTS

- Expertise of the Safety Analysis Report (SAR-2) for Ignalina NPP Unit 2 (contract). In 2004, under subcontract No 7829/03 between VATESI-KTU-Vilnius TECH, scientific research work was carried out (project RSR-2). The task was to analyse the "Operational norms, rules and procedures" applied at the Ignalina Nuclear Power Plant. In 2004, work was carried out in accordance with the tasks TG12 "Safety Acceptability Reasonableness Assessment" and TG13 "Summary".
- Expertise of documents related to the Ignalina NPP project (Unit 1 fuel burn-down in the Unit 2 reactor of the IAEA) (contract). Subcontract No 300S412 between VATESI-FI-Vilnius TECH.
- Expertise of the Ignalina NPP non-project accident analysis documents (contract). Subcontract No 1116-AP between VATESI-FI-Vilnius TECH.
- Expert analysis of the safety assessment requirements for P-2004-01 for the safety assessment of cracked joints left for further operation of the RBMK-1500 reactor cooling system austenitic pipelines with possible intergranular corrosion cracking under stress (contract). Subcontract No 1679-AP between VATESI-KTU-Vilnius TECH.
- PHARE project ZZ9819-LT/TS/04-0001 "Support for strengthening Lithuanian technical support organisations in the areas of reactor integrity, control and management, and plant ageing management" Project duration: 2003-2004. The Institute of Welding and Material Science Problems (Vilnius TECH) participated in this project as an expert on behalf of VATESI.
- Measure 2.5 "Improving the quality of human resources in research and innovation". The project "Improvement and validation of the qualification of welding engineers in accordance with EU requirements". 2006-2008 m.
- Lithuania-Ukraine bilateral research cooperation programme. Project "Investigation of defects in nano- and microelectronic devices functioning under extreme conditions". Deadlines 2007-2008
- Lithuania-Ukraine bilateral research cooperation programme. Project "Development and study of nano-technologies for protection of electronic systems against vibrations and shocks" Deadlines 2009-2010
- Lithuania-Ukraine bilateral research cooperation programme. Project "Studies on surface modification of SLS sintered iron-based powders" TAP-LB-14-035. Deadlines 2016-2017.