### LABORATORY OF NUCLEAR ENGINEERING

## International cooperation

You may know us from FP7, Horizon 2020 and IAEA research projects





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# RADWASTE MANAGEMENT SAFETY AND NPP DECOMMISSIONING

LABORATORY OF NUCLEAR ENGINEERING

## Areas of research

- SAFETY OF SPENT NUCLEAR FUEL (SNF) MANAGEMENT: MODELLING OF FUEL CHARACTERISTICS, SAFETY AND ENVIRONMENTAL IMPACT ASSESSMENT OF STORAGE AND DISPOSAL FACILITIES, NORMATIVE AND LEGISLATIVE BASE;
- SAFETY OF RADIOACTIVE WASTE MANAGEMENT: SAFETY AND ENVIRONMENTAL IMPACT ASSESSMENT OF TREATMENT TECHNOLOGIES AND STORAGE AND DISPOSAL FACILITIES, NORMATIVE AND LEGISLATIVE BASE;
- INVESTIGATION OF THERMAL PROCESSES FOR NUCLEAR AND NON-NUCLEAR APPLICATIONS: EXPERIMENTAL AND NUMERICAL, FLUE GAS CLEANING, HEAT RECOVERY;
- EVALUATION OF DIFFERENT FACTORS RELATED TO DECOMMISSIONING OF NUCLEAR POWER PLANTS: PLANNING AND COST OF DECOMMISSIONING AND DISMANTLING; RADIOLOGICAL CHARACTERIZATION OF THE AREA, BUILDINGS, SYSTEMS AND EQUIPMENT; SAFETY AND ENVIRONMENTAL IMPACT ASSESSMENT OF INDIVIDUAL FACILITIES; NORMATIVE AND LEGISLATIVE BASE;
- ASSESSMENT OF FIRE HAZARD AT NUCLEAR POWER PLANTS AND OTHER INDUSTRIAL PLANTS;
- RESEARCH RELATED TO CONSTRUCTION OF NEW NUCLEAR POWER PLANT IN LITHUANIA.

# **Project** expertise

FOR SCIENTIFIC RESEARCH AND DEVELOPMENT:

## OUR EXPERTISE FOR IMPLEMENTATION PROJECTS

- Safety assessment;
- Environmental impact assessment;
- Decommissioning-related assessment;
- Heat transfer in single and two-phase flows;
- Flue gas cleaning, heat recovery.

## ) IMPLEMENTATION PROJECT PORTFOLIO:

- PROJECT "PREPARATION OF THE SAR, EIA AND SUPPORT FOR THE LICENSING OF THE SNF STORAGE FACILITY WITHIN THE IGNALINA B1 PROJECT";
- PROJECT "DESIGN AND CONSTRUCTION OF NEW SOLID RADIOACTIVE WASTE MANAGEMENT AND STORAGE FACILITIES (SWMSF)";
- THE PROJECT "NEAR-SURFACE REPOSITORY FOR LOW AND INTERMEDIATE LEVEL SHORT-LIVED RADIOACTIVE WASTE (DESIGN)";
- PROJECT "DEVELOPMENT OF INNOVATIVE THERMAL DECOMPOSITION TECHNOLOGY AND ITS APPLICATION FOR SEWAGE SLUDGE UTILIZATION";

 PROJECT "INPP BUILDING V1 EQUIPMENT DISMANTLING AND DECONTAMINATION DESIGN DEVELOPMENT";

Radionuclide migration modeling

Slice: Hydraulic head (m) Arrow Volume: Darcy's velocity fie

- PROJECT "INPP BUILDING 117/1 D&D PROJECT DEVELOPMENT";
- PROJECT "LANDFILL FACILITY FOR SHORT-LIVED VERY LOW LEVEL WASTE";
- PROJECT "PREPARATION OF THE DECOMMISSIONING PLAN FOR MAIŠIAGALA RADIOACTIVE WASTE STORAGE FACILITY AND ENVIRONMENTAL IMPACT ASSESSMENT OF PLANNED ECONOMIC ACTIVITY";

Etc.



THE FOLLOWING SOFTWARE IS USED FOR INVESTIGATION:

- MicroSkyshine, MicroShield, Scale, MCNP (for investigation of used nuclear fuel and its storage equipment characteristics);
- PetraSim, GoldSim, COMSOL, Amber, Gardenia, ISC Aermod View, EQ3/6, PHREEQC 2 (for investigation of the characteristics of radioactive waste and its treatment, storage equipment and disposal facilities);
- PyroSim, CFAST6 (for investigation of fire in nuclear facilities and industrial plants);
- ANSYS, COMSOL (for investigation of heat transfer and flow hydrodynamics in various installations);
- DECRAD software developed by the Laboratory for analysis of the dismantling process of various nuclear facilities.





#### OUR MAIN CLIENTS



# A definition of activation

#### PARTNERS FOR IMPLEMENTATION PROJECTS

