



# **Ultrasonic measurement and non-destructive techniques for extreme conditions and non-conventional applications**

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**Kaunas University of Technology  
Ultrasound Research Institute  
2018**



# Scientific and technological expertise

## Who we are ? Research field

**The Ultrasound Institute** participated in 24 FP5, FP6, FP7 and 2 Eurostars projects, also participates in 5 Horizon 2020 (KTU participates in 21 projects). The main area of interest covers development of new advanced ultrasonic measurement, imaging and non-destructive techniques for extreme conditions (high temperatures, strong radioactive radiation, high pressure, aerospace and chemical activity) and non-conventional applications of NDT, monitoring, quality control and diagnostics. **Examples:**

- **H2020 FTI** project CreepUT An ultrasonic non-destructive testing system for detection and quantification of early stage subsurface creep damage in the thermal power generation industry (2016-2018)
- **H2020 NFRP** project Advise „ADVanced Inspection of Complex StructurEs“ (2017-2021)
- **H2020 EIT KIC** project Raw Materials Upscaling Call FLAME: „FLy Ash to valuable MinErals“ (2018-2019)



# H2020 topics of interest for the projects

## Call ID

- LC-SC3-RES-23-2019: Development of next generation biofuel and alternative renewable fuel technologies for aviation and shipping
- LC-SC3-EE-13-2018-2019-2020: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource
- LC-SC3-EE-4-2019-2020: Upgrading smartness of existing buildings through innovations for legacy equipment
- LC-SC3-RES-16-2019: Development of solutions based on renewable sources that provide flexibility to the energy system
- LC-SC3-NZE-4-2019: Integrated solutions for flexible operation of fossil fuel power plants through power-to-X-to-power and/or energy storage
- NFRP-2019-2020-05: Support for safety research of Small Modular Reactors
- NFRP-2019-2020-06: Safety Research and Innovation for advanced nuclear systems



# Idea for the project proposal No.1

## Ultrasound Institute

**Demand /  
solution**

**Partnerships**

**Working title:**

Safer components for renewable, thermal and nuclear sectors of energy

**Demand:** quality control during manufacturing, monitoring of operation and periodical NDT inspection of metal, ceramic, composite components for different applications in energy sectors (pipelines, vessels, blades, hydrofoils etc).

**Our solution: multi-frequency** ultrasonic measurement, monitoring and testing technologies combined with advanced signal, image processing and decision support.

**We are looking for partners** from public, academia, industrials and business sectors.

**Sectors of partners coverage:** development, manufacturing, exploitation, maintenance, inspections



# Idea for the project proposal No.2

## Ultrasound Institute & Department of Electrical power systems

**Demand /  
solution**

**Partnerships**

### **Working title:**

Safer components and reliable operation of electric transfer and distribution grids, integration of renewables

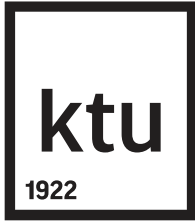
**Demand:** prevention of failures and incensement of stability of electric transfer and distribution grids

### **We are offering:**

- Solutions for effective integration of renewable energy sources into grid
- Solutions for protection against overvoltage
- Solutions for analysis of fast transients, harmonics, and events in electrical power systems

**We are looking for partners** from public, academia, industrials and business sectors.

**Sectors of partners coverage:** development, manufacturing, exploitation, maintenance, inspections



# Thank You for attention

## Contacts:



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