

Division of Environmental Acoustics

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Research Activities

- Theoretical research aiming at the explanation of the physical basis of phenomena which determine the acoustic climate in particular environment: urban area, home and workplace.
- Development of computer models of the environmental noise, comprising a source model, propagation model and reception model resulting from physiology and psychosociological characteristics of people.
- Theoretical and experimental analysis of response of resonators to the acoustic excitation of small and high amplitudes. Investigation of influence of the excitation amplitude on acoustical parameters of resonators.
- Development of new experimental techniques for determination of sound absorbing properties of resonant systems.
- Theoretical and experimental research of phenomenon of discrete sound production in piping systems with closed side branches. Modelling of sound generation process and sound propagation in piping system. The analysis of acoustic resonance condition in piping systems with many side branches.
- Mathematical description and empirical analysis of the sound generation process for gas flow past chamber resonators. Application of the discrete vortices method for determination of the frequency and amplitude of the excited acoustic oscillations.
- Methods of reduction of flow-resonant oscillations produced by gas flow past cavity.
- Problems of the acoustic climate modelling and shaping in rooms. Methods of acoustic field description in rooms of complex shapes and coupled-room systems. Investigation of fundamental characteristics of acoustic field inside enclosures like the rise time and the reverberation time.
- Measurements of road traffic and environmental noise for the assessment of noise nuisance and harmfulness. Expertises concerning the influence of industrial noise on the environment.