

ISAV – Iranian Society of Acoustics and Vibration

Bioengineering & Human Response:

Biodynamic Response of Human Head
Hand-arm vibration syndrome (HAVS)
Human Response to Vibration
Modeling of biomechanical structures
Response of seated human to sinusoidal vibration and impact

Condition Monitoring:

Condition monitoring - damage detection
Damage / crack modeling and detection

Dynamics of Civil Structures:

Dynamics of bridges
Dynamics of Tall buildings
Earthquake Engineering

Noise & Vibration Control:

Active control of structural acoustics and vibration
Adaptronics & Smart structures
Aeroacoustics and flow noise
Active Noise Control
Active Vibration Control
Isolation of mechanical systems from shock and vibration
Multi-body dynamics and control
Noise generation and propagation
Passive and Active NVH Control

The effects of noise

Vibration isolation and nano-positioning

Rotating Machinery:

Dynamics of rotating machinery

Monitoring and diagnostics of rotating machinery

Shock and Vibration Testing:

Blast Test Methods & Ground Shock

Dynamic testing: methods and instrumentation

Experimental dynamic substructuring

Instrumentation, including calibration techniques, for measurement and analysis of shock and vibration

Measurement uncertainty and variability

Modal testing: methods and case studies

Operational modal analysis

Shock Testing

Vibration and Shock Test Fixture Design

Vibration Test Methods & Applications

Structural Dynamics:

Aero-elasticity

Blast Effects on Structures

CAE methodologies for mid-frequency analysis in vibration and acoustics

Composite structures

Damping and internal friction

Development and application of analytical techniques

Energy Methods for the Characterization and Simulation of Shock and Vibration

Hydro-elasticity

Lightweight panels and structures
Mechanical impedance (mobility)
Medium and high frequency techniques
Modal analysis
Nonlinear Analysis
Random Vibration & Acoustics
Resonances of structures
Responses of mechanical systems to dynamic excitations
Self-excited vibrations
Simulation of environmental factors
Statistical Energy Analysis
Substructuring and coupling
Thin Walled Structures
Vibro Acoustic Analysis
Vibration and vibro-impacts
Vibration of mechanical structures and technical acoustics
Vibro-acoustic modelling and prediction

Identification of Mechanical Systems:

Damping; modeling and identification
Fuzzy and interval methods
Identification of mechanical systems and diagnosis of mechanical structures
Inverse methods - load identification
Model updating and correlation
Non-linearities: identification and modeling
Probabilistic methods

Parameter estimation and identification

Transfer path analysis and source identification

Uncertainty identification

Vehicle Dynamics:

Railway dynamics and ground vibrations

Tyre/road noise and experimental validation

Vehicle concept modeling

Vehicle dynamics

Vehicle noise and vibration (NVH)

Architectural Acoustics

Room Acoustics
Airborne and impact transmission in building structures
Airborne and structure-borne noise control
Noise control of building systems
Electroacoustics systems
Psychophysics and psychoacoustics

Engineering Acoustics

Transducers and arrays
Underwater acoustic systems
Acoustic instrumentation and monitoring
Applied sonics, promotion of useful effects, information gathering and transmission
Audio engineering
Acoustic holography and acoustic imaging
Acoustic signal processing (equipment and techniques)
Ultrasound and infrasound

Musical Acoustics

Physics of musical sound production
Music perception and cognition
Analysis and synthesis of musical sounds and composition

Underwater Acoustics

Natural and anthropogenic sound and its generation underwater; and the propagation,
Reflection and scattering of sound in the underwater environment (the seabed and the sea surface)

Physical Acoustics

Ultrasonics and infrasonics

Propagation of sound through the atmosphere, fluids, and fluid-filled materials

Nonlinear acoustics

Biomedical ultrasound

Use of acoustics as a tool in studying superconductivity, dislocation in solids, and lattice vibrations

Acoustical studies of structural and dynamical properties of matter

Interaction of sound with light and other forms of radiation

Psychological and Physiological Acoustics

Detectability of features of sounds in quiet and in the presence of other sounds

Psychological scaling of attributes of sound, psychoacoustic methodology

Recognition of sounds, including speech

Cochlear mechanics and cochlear transduction

Physiology and biophysics of the inner ear, the auditory nerve, and higher neural centers

Signal Processing in Acoustics

Acoustic signal processing

Theory of acoustic signal processing

Acoustic signal detection and classification, applications to control systems

Statistical properties of signals and noise

Signal processing for communications: telephony and telemetry, sound pickup and reproduction, multimedia

Acoustic signal coding, morphology, and transformation

Acoustic array systems and processing, beam-forming

Space-time signal processing, other than matched field processing

Time-frequency signal processing, wavelets

Source localization and parameter estimation

Matched field processing

Acoustic imaging, displays, pattern recognition, feature extraction

Adaptive processing

Acoustic signal processing techniques for neural nets and learning systems

Signal processing techniques for acoustic inverse problems

Signal processing instrumentation, integrated systems, smart transducers, devices and architectures, displays and interfaces for acoustic systems

Remote sensing methods, acoustic tomography

Acoustic holography

Wave front reconstruction, acoustic time-reversal, and phase conjugation

Model-based signal processing

Acoustic sensing and acquisition

Non-stationary signal analysis, non-linear systems, and higher order statistics

Speech Communication

The acoustic, physiological, psychological, and linguistic phenomena related to the human speech process

Speech-transmission systems

Machine processing of speech, including speech analysis, synthesis and automatic recognition

The measurement and assessment of speech as to its intelligibility and its quality