

Acoustics

Aeroacoustics
Hydrodynamic noise
Jet noise
Noise control
Waves in random media

Aerodynamics

Flow-structure interactions
High-speed flow

Biological Fluid Dynamics

Bioconvection
Biomedical Flows
Blood flow
Capsule/cell dynamics
Collective behaviour
Flow-vessel interactions
Membranes
Micro-organism dynamics
Peristaltic pumping
Propulsion
Pulmonary fluid mechanics
Swimming/flying

Boundary Layers

Boundary layer control
Free shear layers
Pipe flow boundary layer
Boundary layer receptivity
Boundary layer separation
Boundary layer stability
Boundary layer structure

Complex Fluids

Active matter
Colloids
Dielectrics
Emulsions
Foams
Liquid Crystals
Quantum fluids
Suspensions

Compressible Flows

Compressible boundary layers
Detonation waves
Gas dynamics
Hypersonic Flow
Shock waves
Supersonic flow

Convection

Bénard convection
Buoyant boundary layers
Convection in cavities

Convection in porous media
Double diffusive convection
Buoyancy-driven instability
Marangoni convection
Moist convection
Plumes/thermals

Drops and Bubbles

Aerosols/atomization
Boiling
Breakup/coalescence
Bubble dynamics
Cavitation
Drops
Electrohydrodynamic effects
Sonoluminescence
Thermocapillarity

Flow Control

Control theory
Drag reduction
Instability control
Mixing enhancement

Geophysical and Geological Flows

Air/sea interactions
Atmospheric flows
Baroclinic flows
Coastal engineering
Geodynamo
Geostrophic turbulence
Geothermal flows
Gravity currents
Hydraulic control
Ice sheets
Internal waves
Magma and lava flow
Mantle convection
Meteorology
Oceanography
Ocean circulation
Ocean processes
Quasi-geostrophic flows
River dynamics
Rotating flows
Sediment transport
Sea ice
Shallow water flows
Stratified flows
Topographic effects
Waves in rotating fluids

Granular media

Avalanches
Cohesive sediments

Dry granular material
Wet granular material

Instability

Absolute/convective instability
Nonlinear instability
Parametric instability
Shear-flow instability
Transition to turbulence
Taylor-Couette flow

Interfacial Flows (free surface)

Capillary flows
Contact lines
Fingering instability
Liquid bridges
Thin films
Wetting and wicking

Low-Reynolds-number flows

Boundary integral methods
Hele-Shaw flows
Lubrication theory
Porous media
Slender-body theory
Stokesian dynamics

Mass Transport

Coupled diffusion and flow
Dispersion

Materials Processing Flows

Coating
Microelectronics
Polymer processing

Mathematical Foundations

Big data
Computational methods
General fluid mechanics
Hamiltonian theory
Machine learning
Navier-Stokes equations
Topological fluid dynamics
Variational methods

MHD and Electrohydrodynamics

Dynamo theory
Electrokinetic flows
High-Hartman-number flows
Magnetic fluids
Magneto convection
MHD turbulence
Plasmas

Micro-/Nano-fluid dynamics

MEMS/NEMS

Microfluidics
Non-continuum effects
Microscale transport

Mixing

Chaotic advection
Granular mixing
Laminar mixing
Turbulent mixing

Multiphase and Particle-laden flows

Alluvial dynamics
Core-annular flow
Fluidized beds
Gas/liquid flow
Multiphase flow
Particle/fluid flow
Reacting multiphase flow

Non-Newtonian Flows

Plastic materials
Polymers
Rheology
Viscoelasticity

Nonlinear Dynamical Systems

Bifurcation
Chaos
Fractals
Low-Dimensional models
Pattern formation

Phase change

Condensation/evaporation
Icing
Morphological instability
Solidification/melting

Rarefied Gas Flow

Kinetic theory
Molecular dynamics

Reacting Flows

Combustion
Detonations
Flames
Laminar reacting flows
Turbulent reacting flows

Turbulent Flows

Compressible turbulence
Homogeneous turbulence
Intermittency
Isotropic turbulence
Pipe flow
Rotating turbulence

Journal of Fluid Mechanics – List of keywords

- Shear Layer turbulence
- Stratified turbulence
- Turbulent boundary layers
- Turbulence control
- Turbulent convection
- Turbulence modelling
- Turbulence simulation
- Turbulence theory
- Turbulent transition
- Wave-turbulence interactions

Vortex Flows

- Contour dynamics
- Vortex breakdown
- Vortex dynamics
- Vortex instability
- Vortex interactions
- Vortex shedding

Wakes/Jets

- Buoyant jets
- Jets
- Separated flows
- Shear layers
- Vortex streets
- Wakes

Waves/Free-surface flows

- Capillary waves
- Channel flow
- Critical layers
- Elastic waves
- Faraday waves
- Hydraulics
- Shear waves
- Solitary waves
- Surface gravity waves
- Wave breaking
- Wave scattering
- Wave-structure interactions
- Wind-wave interactions