Instructions to the Authors:

Please choose **a sorting category** for your abstract. The sorting category should be the *best match* category considering the content, context and emphasis from the following list. The sorting categories have some overlap with each other. Select that sorting category which best matches your work. You may provide additional information for abstract sorting as text in **Special Instructions** field, including a secondary sorting category.

1. Acoustics: General
   - 1.1 Acoustics: Aeroacoustics
   - 1.2 Acoustics: Hydroacoustics
   - 1.3 Acoustics: Thermoacoustics
2. Aerodynamics: General
   - 2.1 Aerodynamics: Control
   - 2.2 Aerodynamics: Fixed, Flapping and Rotating Wings
   - 2.3 Aerodynamics: Fluid Structure Interactions, Membranes, Flutter
   - 2.4 Aerodynamics: Theory
   - 2.5 Aerodynamics: Vehicles
   - 2.6 Aerodynamics: Wind Energy
3. Astrophysical fluid dynamics
4. Biological fluid dynamics: General
   - 4.1 Biological fluid dynamics: Biofilms
   - 4.2 Biological fluid dynamics: Collective Behavior and Microswimmers
   - 4.3 Biological fluid dynamics: Flows in Fluid Films and Biofilms
   - 4.4 Biological fluid dynamics: Flows involving Vesicles and Micelles
   - 4.5 Biological fluid dynamics: Single Cells and Bacteria
   - 4.6 Biological fluid dynamics: Plant Biomechanics
   - 4.7 Biological fluid dynamics: Physiological
     - 4.7.1 Biological fluid dynamics: Physiological – Cardiovascular flows
     - 4.7.2 Biological fluid dynamics: Physiological – Respiratory flows
     - 4.7.3 Biological fluid dynamics: Physiological – Brain
     - 4.7.4 Biological fluid dynamics: Physiological – Phonation and Speech
   - 4.8 Biological fluid dynamics: Flying
     - 4.8.1 Biological fluid dynamics: Flying – Bats
     - 4.8.2 Biological fluid dynamics: Flying -- Birds
     - 4.8.3 Biological fluid dynamics: Flying -- Insects
   - 4.9 Biological fluid dynamics: Locomotion
     - 4.9.1 Biological fluid dynamics: Locomotion – Swimming and flapping
     - 4.9.2 Biological fluid dynamics: Locomotion – Active Suspensions
     - 4.9.3 Biological fluid dynamics: Locomotion -- Bacteria
     - 4.9.4 Biological fluid dynamics: Locomotion – Microswimmers
     - 4.9.5 Biological fluid dynamics: Locomotion -- Insect Flight
     - 4.9.6 Biological fluid dynamics: Locomotion – Non-Newtonian Fluids

- 4.10 Biological fluid dynamics: Medical Devices
- 4.11 Biological fluid dynamics: Pumping Phenomena

5. Boundary Layers: General
   - 5.1 Boundary Layers: Compressible and Thermal
   - 5.2 Boundary Layers: Structure and Turbulence
   - 5.3 Boundary Layers: Turbulent Boundary Layers
     - 5.3.1 Boundary Layers: Turbulent Boundary Layers – High Re Effects
     - 5.3.2 Boundary Layers: Turbulent Boundary Layers – Wall Modeling
   - 5.4 Boundary Layers: Flow over Roughness Elements
   - 5.5 Boundary Layers: Superhydrophobic Surfaces
   - 5.6 Boundary Layers: Wind Turbine Interaction
6. Bubbles: General
   - 6.1 Bubbles: Acoustics
   - 6.2 Bubbles: Cavitation, Nucleation, Collapse, Coalescence
   - 6.3 Bubbles: Cavitation, Acoustics and Biomedical
   - 6.4 Bubbles: Collective dynamics
   - 6.5 Bubbles: Dynamics
   - 6.6 Bubbles: Growth, Heat Transfer and Boiling
   - 6.7 Bubbles: Microbubbles and Nanobubbles
   - 6.8 Bubbles: Rupture
   - 6.9 Bubbles: Surface Interactions
   - 6.10 Bubbles: Surfactants and Foams
7. Compressible Flow: General
   - 7.1 Compressible Flow: Supersonic and Hypersonic
   - 7.2 Compressible Flow: Shock waves and explosions
   - 7.3 Compressible Flow: Shock Interactions and Focusing
   - 7.4 Compressible Flow: Turbulence
   - 7.5 Compressible Flow: Stability
   - 7.6 Compressible Flow: Shock-Boundary Layer Interaction
8. Computational Fluid Dynamics: General
   - 8.1 Computational Fluid Dynamics: Algorithms
   - 8.2 Computational Fluid Dynamics: DG and Higher Order Schemes
   - 8.3 Computational Fluid Dynamics: Immersed Boundary Methods
   - 8.4 Computational Fluid Dynamics: High Performance Computing
   - 8.5 Computational Fluid Dynamics: Applications
   - 8.6 Computational Fluid Dynamics: LBM
   - 8.7 Computational Fluid Dynamics: LES, DNS, Hybrid RANS/LES
   - 8.8 Computational Fluid Dynamics: RANS Modeling
   - 8.9 Computational Fluid Dynamics: Shock Capturing
   - 8.10 Computational Fluid Dynamics: SPH
   - 8.11 Computational Fluid Dynamics: Transonic flows and Turbomachinery
   - 8.12 Computational Fluid Dynamics: Unstructured grids/AMR
   - 8.13 Computational Fluid Dynamics: Uncertainty Quantification

9. Convection and Buoyancy-driven flows: General
    - 9.1 Convection and Buoyancy-driven flows: Binary systems
    - 9.2 Convection and Buoyancy-driven flows: Heat Transfer and Forced Convection
    - 9.3 Convection and Buoyancy-driven flows: Environmental
    - 9.4 Convection and Buoyancy-driven flows: Free-convection and Rayleigh-Benard
    - 9.5 Convection and Buoyancy-driven flows: Thermal Radiation
    - 9.6 Convection and Buoyancy-driven flows: Particle-laden
    - 9.7 Convection and Buoyancy-driven flows: Stratified Flow
    - 9.8 Convection and Buoyancy-driven flows: Thermal Instability
    - 9.9 Convection and Buoyancy-driven flows: Materials Processing
    - 9.10 Convection and Buoyancy-driven flows: Numerical Simulations
    - 9.11 Convection and Buoyancy-driven flows: Turbulent Convection
10. Drops: General
    - 10.1 Drops: Buoyancy Effects
    - 10.2 Drops: Bouncing, Impact and Dynamic Surface Interactions
    - 10.3 Drops: Complex Fluids
    - 10.4 Drops: Electric Field Effects
    - 10.5 Drops: Elastic Surfaces and Fibers
    - 10.6 Drops: Heat Transfer and Evaporation
    - 10.7 Drops: Impact on Surfaces
    - 10.8 Drops: Instability, Break-up and Splashing
    - 10.9 Drops: Interactions
    - 10.10 Drops: Levitation
    - 10.11 Drops: Laden with Particles
    - 10.12 Drops: Pinch-off and Coalescence
    - 10.13 Drops: Sessile and Static Surface Interactions
    - 10.14 Drops: Superhydrophobic Surfaces
    - 10.15 Drops: Wetting and Spreading
11. Electrokinetic Flows: General
    - 11.1 Electrokinetic Flows: Computations
    - 11.2 Electrokinetic Flows: Electric Double Layers
    - 11.3 Electrokinetic Flows: Ion-selective Interfaces
    - 11.4 Electrokinetic Flows: Instability and Chaos
    - 11.5 Electrokinetic Flows: Induced-Charge Flows and Nonlinear Dynamics
    - 11.6 Electrokinetic Flows: Porous Media and Charge Storage
    - 11.7 Electrokinetic Flows: Nanochannels and Surface Conduction
    - 11.8 Electrokinetic Flows: Preconcentration, Separations and Reactions
12. Energy: General
    - 12.1 Energy: Combustion
    - 12.2 Energy: Electrochemical Generation
    - 12.3 Energy: Environmental Impact

- 12.4 Energy: Propulsion
- 12.5 Energy: Wind and Hydraulic Power
- 12.6 Energy: Storage

13. Experimental Techniques: General
    - 13.1 Experimental Techniques: Aerodynamics/Wind Tunnel
    - 13.2 Experimental Techniques: Data Analysis, Bias and Uncertainty
    - 13.3 Experimental Techniques: Data-driven Inference
    - 13.4 Experimental Techniques: Flow Visualization
    - 13.5 Experimental Techniques: Fluorescence and Microscale
    - 13.6 Experimental Techniques: High Speed
    - 13.7 Experimental Techniques: Multiphase Flow
    - 13.8 Experimental Techniques: Laser-based Diagnostics and Particle Tracking
    - 13.9 Experimental Techniques: Surface Scalar visualization (e.g. Pressure, Temperature)
    - 13.10 Experimental Techniques: Reacting Flows and Spectroscopy
14. Free-Surface Flows: General
    - 14.1 Free-Surface Flows: Waves
    - 14.2 Free-Surface Flows: Hydraulic Jump
    - 14.3 Free-Surface Flows: Interaction with Structures
    - 14.4 Free-Surface Flows: Instability
    - 14.5 Free-Surface Flows: Turbulence
    - 14.6 Free-Surface Flows: Mixing
    - 14.7 Free-surface Flows: Near-surface wakes
15. Flow Control: General
    - 15.1 Flow Control: Actuator Design and Analysis
    - 15.2 Flow Control: Coherent Structures, Vortices and Turbulence
    - 15.3 Flow Control: Drag Reduction
    - 15.4 Flow Control: Passive
    - 15.5 Flow Control: Plasma Actuators
    - 15.6 Flow Control: Separation
    - 15.7 Flow Control: Theory
16. Flow Instability: General
    - 16.1 Flow Instability: Boundary Layers
        - 16.1.1 Flow Instability: Boundary Layers – Surface Topography
        - 16.1.2 Flow Instability: Boundary Layers – Three Dimensional
        - 16.1.3 Flow instability: Boundary Layers -- Transition
    - 16.2 Flow Instability: Control
    - 16.3 Flow Instability: Elastic and Complex fluids
    - 16.4 Flow Instability: Geophysical
    - 16.5 Flow Instability: Global Modes
    - 16.6 Flow Instability: Interfacial and Thin Film
        - 16.6.1 Flow Instability: Interfacial and Thin Film – Elasticity and Substrates

21. Jets: General
    - 21.1 Jets: Swirling
    - 21.2 Jets: Impinging
    - 21.3 Jets: Mixing and Control
22. Magnetohydrodynamics
23. Microscale Flows: General
    - 23.1 Microscale Flows: Computations
    - 23.2 Microscale Flows: Chemical and Biochemical Analysis
    - 23.3 Microscale Flows: Devices
    - 23.4 Microscale Flows: Drops, Bubbles
    - 23.5 Microscale Flows: Electrokinetics
    - 23.6 Microscale Flows: Electro/Magnetic Manipulation
    - 23.7 Microscale Flows: Emulsions
    - 23.8 Microscale Flows: Microfluidic Devices
    - 23.9 Microscale Flows: Ion-selective Membranes and Channels
    - 23.10 Microscale Flows: Interfaces and Wetting
    - 23.11 Microscale Flows: Locomotion
    - 23.12 Microscale Flows: Mixing and Reactions
    - 23.13 Microscale Flows: Opto-Fluidics
    - 23.14 Microscale Flows: Oscillations
    - 23.15 Microscale Flows: Porous Media and Porous Electrodes
    - 23.16 Microscale Flows: Pumping
    - 23.17 Microscale Flows: Particles
        - 23.17.1 Microscale Flows: Particles – Orientation and Self-assembly
        - 23.17.2 Microscale Flows: Particles – Electrokinetically induced Flow
    - 23.18 Microscale Flows: Flow in Microchannels
24. Multiphase Flows: General
    - 24.1 Multiphase Flows: Bubbly flows, Cavitation and Ventilation
    - 24.2 Multiphase Flows: Computational Methods
    - 24.3 Multiphase Flows: Modeling and Theory
    - 24.4 Multiphase Flows: Particle-laden flows
    - 24.5 Multiphase Flows: Turbulence
25. Nano Flows: General
    - 25.1 Nano Flows: Basic Flow Physics
    - 25.2 Nano Flows: Catalysis and Synthesis
    - 25.3 Nano Flows: Computations and Modeling
    - 25.4 Nano Flows: Devices and Applications
    - 25.5 Nano Flows: Electrokinetics and Concentration Polarization
    - 25.6 Nano Flows: Heat Transfer and Mixing
    - 25.7 Nano Flows: Industrial Processes
    - 25.8 Nano Flows: Membranes
    - 25.9 Nano Flows: Selectivity and Rectification
    - 25.10 Nano Flows: Separation, Chemical/BioChemical Analysis
    - 25.11 Nano Flows: Thermophysical Properties

- 25.12 Nano Flows: Theory

26. Nonlinear Dynamics: General
    - 26.1 Nonlinear Dynamics: Bifurcations
    - 26.2 Nonlinear Dynamics: Chaos
    - 26.3 Nonlinear Dynamics: Fractals
    - 26.4 Nonlinear Dynamics: Control
    - 26.5 Nonlinear Dynamics: Coherent Structures
    - 26.6 Nonlinear Dynamics: Model Reduction
    - 26.7 Nonlinear Dynamics: Topology
    - 26.8 Nonlinear Dynamics: Transition to Turbulence
    - 26.9 Nonlinear Dynamics: Turbulence
27. Non-Newtonian Flows: General
    - 27.1 Non-Newtonian Flows: Rheology
    - 27.2 Non-Newtonian Flows: Biological Applications
    - 27.3 Non-Newtonian Flows: Computational Methods
    - 27.4 Non-Newtonian Flows: Hydraulic Fracking, Proppants
    - 27.5 Non-Newtonian Flows: Instability and Turbulence
    - 27.6 Non-Newtonian Flows: Polymer Solutions
    - 27.7 Non-Newtonian Flows: Applications
28. Porous Media Flows: General
    - 28.1 Porous Media Flows: Convection and Heat Transfer
    - 28.2 Porous Media Flows: CO_2 Sequestration
    - 28.3 Porous Media Flows: Electrochemical Processes
    - 28.4 Porous Media Flows: Imbibition and Injection
    - 28.5 Porous Media Flows: Mixing and Turbulence
    - 28.6 Porous Media Flows: Wicking and Drying
    - 28.7 Porous Media Flows: Displacement of Immiscible Fluids
29. Particle-laden Flows: General
    - 29.1 Particle-laden Flows: Clustering
    - 29.2 Particle-laden Flows: Liquid-Solid Flows
    - 29.3 Particle-laden Flows: Experimental Techniques
    - 29.4 Particle-laden Flows: Non-Spherical Particles
    - 29.5 Particle-laden Flows: Deformable Particles
    - 29.6 Particle-laden Flows: Particle-Resolved Simulations
    - 29.7 Particle-laden Flows: Particle-Turbulence Interaction
    - 29.8 Particle-laden Flows: Radiation and Optics
    - 29.9 Particle-laden Flows: Simulations
    - 29.10 Particle-laden Flows: Turbulence Modulation
30. Rarefied Flows: General
    - 30.1 Rarefied Flows: Hypersonic
    - 30.2 Rarefied Flows: DSMC
    - 30.3 Rarefied Flows: Materials Processing
    - 30.4 Rarefied Flows: Plasma
31. Reacting Flows: General

- 31.1 Reacting Flows: Applications
- 31.2 Reacting Flows: Coal
- 31.3 Reacting Flows: Emissions and Soot
- 31.4 Reacting Flows: Computational Methods
- 31.5 Reacting Flows: DNS
- 31.6 Reacting Flows: LES
- 31.7 Reacting Flows: Instability
- 31.8 Reacting Flows: Kinetics
- 31.9 Reacting Flows: Experiments
- 31.10 Reacting Flows: Extinction and Ignition
- 31.11 Reacting Flows: Turbulent Combustion
- 31.12 Reacting Flows: Sprays and Multiphase Flow Effects
- 31.13 Reacting Flows: Modeling and Theory
- 31.14 Reacting Flows: Modeling and Simulations
- 31.15 Reacting Flows: Premixed
- 31.16 Reacting Flows: Non-premixed
- 31.17 Reacting Flows: PFD and FDF
- 31.18 Reacting Flows: Detonations, Explosions and DDT

32. Separated Flows: General
    - 32.1 Separated Flows: Control
    - 32.2 Separated Flows: Diffusers
    - 32.3 Separated Flows: Massive Separation
    - 32.4 Separated Flows: Modeling and Theory
    - 32.5 Separated Flows: Applications
    - 32.6 Separated Flows: Instability and Transition
    - 32.7 Separated Flows: Simulations
    - 32.8 Separated Flows: Wakes
33. Suspensions: General
    - 33.1 Suspensions: Confined Flows
    - 33.2 Suspensions: Geophysical Applications
    - 33.3 Suspensions: Rheology
    - 33.4 Suspensions: Structure and Phase Transitions
    - 33.5 Suspensions: Fluid-Particle Interaction
    - 33.6 Suspensions: Fluidization
    - 33.7 Suspensions: Instability
    - 33.8 Suspensions: Theory and Modeling
34. Surface Tension Effects: General
    - 34.1 Surface Tension Effects: Inter-particle interaction
    - 34.2 Surface Tension Effects: Interfacial Phenomena
    - 34.3 Surface Tension Effects: Textured Substrates
35. Superfluids: Dynamics -- General
    - 35.1 Superfluids: Dynamics – Vortices
    - 35.2 Superfluids: Dynamics – Turbulence
    - 35.3 Superfluids: Dynamics -- Theory

36. Turbulence: General
    - 36.1 Turbulence: Aero-optics
    - 36.2 Turbulence: Planetary Boundary layer
    - 36.3 Turbulence: Boundary layers
    - 36.4 Turbulence: Buoyancy-driven
    - 36.5 Turbulence: Compressible
    - 36.6 Turbulence: Environmental Flows
    - 36.7 Turbulence: Effects of Stratification
    - 36.8 Turbulence: Jets
    - 36.9 Turbulence: Shear layers
    - 36.10 Turbulence: Turbulent/Non-turbulent Interface
    - 36.11 Turbulence: Wakes
    - 36.12 Turbulence: Mixing
    - 36.13 Turbulence: Modeling
    - 36.14 Turbulence: Multiphase flow
    - 36.15 Turbulence: Particle-laden flows
    - 36.16 Turbulence: Flow through Pipes
    - 36.17 Turbulence: Simulations
        - 36.17.1 Turbulence: Simulations -- DNS
        - 36.17.2 Turbulence: Simulations -- LES
    - 36.18 Turbulence: Theory
        - 36.18.1 Turbulence: Theory – Wall-bounded Flows
        - 36.18.2 Turbulence: Theory -- Measurements
37. Vortex dynamics and vortex flows: General
    - 37.1 Vortex dynamics and Vortex flows: Applications
    - 37.2 Vortex dynamics and Vortex flows: Astrophysical/Geophysical
    - 37.3 Vortex dynamics and Vortex flows: Instability
    - 37.4 Vortex dynamics and Vortex flows: Theory
    - 37.5 Vortex dynamics and Vortex flows: Wakes
    - 37.6 Vortex dynamics and Vortex flows: Propulsion
    - 37.7 Vortex dynamics and Vortex flows: Environmental/Geophysical
    - 37.8 Vortex dynamics and Vortex flows: Simulations
    - 37.9 Vortex dynamics and Vortex flows: Superfluids
    - 37.10 Vortex dynamics and Vortex flows: Turbulence
38. Waves: General
    - 38.1 Waves: Surface Waves
    - 38.2 Waves: Internal and Interfacial Waves
    - 38.3 Waves: Nonlinear Dynamics and Turbulence
39. Focus Session -- Impact of Andy Acrivos on Today’s Fluid Mechanics (Abstracts should pertain to current fluid mechanics research and trace Andy Acrivos' influence on it.)
40. Focus Session – Superhydrophobicity and Drag Reduction
41. Focus Session – Respiratory Bio-fluid Dynamics
42. Fluid Dynamics -- Poster Presentations

43. Fluid Dynamics -- Student Poster Competition
44. Fluid Dynamics – Education, Outreach, and Diversity