

# IUTAM Symposium on Turbulent Structure and Particles-Turbulence Interaction: July 2023

Location: Yifu Science Museum, Lanzhou University

## Programme

July 7	Registration		
	08:00-22:30	<i>Wyndham LanZhou HaiYue Hotel</i>	
	19:00-21:00	<i>Welcome banquet (Toast master: Lian Shen)</i>	
July 8			
	08:30-08:50	Opening Ceremony (Presider: Xiaojing Zheng)	
	08:50-09:20	<i>Group photo &amp; Coffee break</i>	
	Session 1 (Presider: Lian Shen)		
	09:20-10:00	S. Balachandar	Turbulent structure of super, sub, and trans-critical turbidity currents and turbulent-sediment interaction at the bed
	10:00-10:40	Zhaosheng Yu	Turbulence modulation by heavy finite-size particles in vertical channel flows and development of two-fluid models from interface-resolved simulations
	10:40-11:20	Rodney O Fox	A Turbulence model for compressible disperse multiphase flows

<b>July 8</b>	<b>11:20-12:00</b>	Lianping Wang	Simulation and analysis of turbulent flows laden with spherical and non-spherical particles
	<b>12:00-13:30</b>	<i>Lunch Time</i>	
	<b>Session 2 (Presider: Chao Sun)</b>		
	<b>13:30-14:10</b>	Alfredo Soldati	Dynamics of anisotropic particles in turbulence
	<b>14:10-14:50</b>	Xiaojing Zheng	Evolution of structure characteristics during the non-stationary processes in high-Reynolds-number particle-laden wall-bounded turbulence
	<b>14:50-15:30</b>	Chunxiao Xu	Hierarchical structures and particle transport in wall turbulence
	<b>15:30-15:50</b>	<i>Coffee break</i>	
	<b>Session 3 (Presider: Lianping Wang)</b>		
	<b>15:50-16:30</b>	Detlef Lohse (online)	Dispersed multiphase Taylor-Couette turbulence: From bubbly drag reduction to catastrophic phase inversion
	<b>16:30-17:10</b>	Devaraj van der Meer (online)	A synthetic, scaling-law approach to liquid impact
	<b>17:10-17:50</b>	David Richter (online)	Particle-turbulence interactions in high-Re flows: Can small particles influence large-scale motions?
	<b>17:50-18:30</b>	Cristian Marchioli (online)	From DNS to LES of turbulent dispersed flows: Modelling subgrid effects on particle dispersion
	<b>18:30-19:10</b>	Gaetano Sardina (online)	Particle-turbulence interactions in atmospheric warm clouds
<b>19:10-21:00</b>	<i>Dinner Time</i>		

<b>July 9</b>	<b>Session 4 (Presider: Rodney O. Fox)</b>		
	<b>08:30-09:10</b>	Lian Shen	Direct numerical simulation and analysis of bubbly flow in breaking waves
	<b>09:10-09:50</b>	Francesco Picano	Modeling and simulation of droplet evaporation in turbulent sprays with application to respiratory disease transmission
	<b>09:50-10:30</b>	Jiarong Hong	Decoding particle settling dynamics with snow-powered field research
	<b>10:30-10:40</b>	<i>Coffee break</i>	
	<b>Session 5 (Presider: Alfredo Soldati)</b>		
	<b>10:40-11:20</b>	Eckart Meiburg	Cohesive particles in turbulence
	<b>11:20-12:00</b>	Keqing Xia	Vortices as particles in rapidly rotating turbulent flows
	<b>12:00-12:40</b>	René van Hout	Particle-turbulence interactions: from spheres to fibers
	<b>12:40-14:00</b>	<i>Lunch Time</i>	
	<b>Session 6 (Presider: Keqing Xia)</b>		
	<b>14:00-14:40</b>	Jesse Capecelatro	Towards robust turbulence models for strongly-coupled gas-particle flows
	<b>14:40-15:20</b>	Chao Sun	Global and local statistics in turbulent emulsions
	<b>15:20-16:00</b>	Rui Ni	The deposition and clustering dynamics of charged inertial particles in turbulent channel flows
<b>16:00-16:10</b>	<i>Coffee break</i>		

<b>July 9</b>	<b>Session 7 (Presider: Ning Huang)</b>		
	<b>16:10-16:50</b>	Yali Tang	Coarse-grained Euler-Lagrange simulations of polydisperse reactive particulate flows
	<b>16:50-17:30</b>	Susumu Goto	The condition and rate of attenuation of turbulent kinetic energy due to solid spherical particles
	<b>17:30-18:10</b>	Wei Ge	Multi-scale discrete simulation of particle-fluid Interactions
	<b>18:10-18:50</b>	Kun Luo	An improved direct-forcing immersed boundary method for modeling flow dynamics and heat transfer in gas-solid dense flow
	<b>18:50-20:00</b>	<i>Dinner Time</i>	

**Young scholar and PhD student Forum**

**Presider: Guodong Jin**

**July 10**

**08:30-08:50**

Yucang Ruan

Effect of shear-induced lift on particle motion and turbulence modulation in fully developed compressible channel flow

**08:50-09:10**

Yantao Yang

Effects of momentum coupling in the turbulent convection driven by heat-releasing point particles

**09:10-09:30**

Chendong Shen

Numerical Study on Turbulent Diffusion of Weakly Inertial Particles under Large Temperature Difference

**09:30-09:50**

Ao Xu

Control the Migration of Self-propelling Particle in Thermal Turbulence via Reinforcement Learning Algorithm

**09:50-10:10**

Cheng Wang

Turbulent modulation of finite-size particles in Taylor-Couette flow

**10:10-10:30**

Hao Jiang

Distribution of Charged Particles in Turbulent Channel Flow

<b>July 10</b>	<b>10:30-10:50</b>	Qi Wu	Volume-fraction distribution of moderately dense particles in re-shocked Richtmyer-Meshkov flow
	<b>10:50-11:00</b>	<b>Coffee break</b>	
	<b>Presider: Weixi Huang</b>		
	<b>11:00-11:20</b>	Huan Zhang	Local intermittency of electrified dust storms in the near-surface layer
	<b>11:20-11:40</b>	Jiangtao Tan	Artificial Neural Network Modeling Small-Scale Turbulence of Isotropic Turbulent Flows
	<b>11:40-12:00</b>	Xili Guo	Study of Heat Transport Characteristics of Particle-Laden in Vibration Driven Flows
	<b>12:00-12:20</b>	Jinghong Su	Drag modulation in two-phase Taylor-Couette flow with droplets
	<b>12:20-12:40</b>	Jiahui Hao	Rheology of granular flow of Platonic solid-shaped particles

<b>July 10</b>	<b>12:40-13:00</b>	Liang-Bing Chen	Turbulent thermal convection driven by heat-releasing particles
	<b>13:00-13:40</b>	<b>Lunch Time</b>	
	<b>Presider: Yantao Yang</b>		
	<b>13:40-14:00</b>	Guo-Zhen Ma	Direct numerical simulation of turbulent channel flow over three-dimensional sinusoidal roughness
	<b>14:00-14:20</b>	Yihong Du	Sea Water Freezing Modes in a Natural Convection System
	<b>14:20-14:40</b>	Heng-Dong Xi	Effects of polymer additives on the turbulent/non-turbulent interface of turbulent water jet
	<b>14:40-15:00</b>	Ping Wang	Lift force acting on particles moving in the two-phase flow over sediment bed
	<b>15:00-15:20</b>	Yun Liu	Volumetric flow measurement of a displacement piston model for a $\beta$ type Stirling engine
	<b>15:20-15:40</b>	Guohua Wang	Reynolds number effects in turbulent boundary layer
	<b>15:40-16:00</b>	<b>Coffee break</b>	
	<b>Presider: Ping Wang</b>		
	<b>16:00-16:20</b>	Xiaoyan Ye	Nonlocal rheology of dense granular flow

<b>July 10</b>	<b>16:20-16:40</b>	Yang Li	Numerical investigations of turbulent channel flows laden with confined oblate spheroids
	<b>16:40-17:00</b>	Zhen Jian	Air entrapment during drop impacting on a deep pool
	<b>17:00-17:20</b>	Zhikai You	Turbulence induced vibration in particle detachment from a wall
	<b>17:20-17:40</b>	Zi-Mo Liao	GPU accelerated four-way coupled PP-DNS of compressible particle-laden wall turbulence
	<b>17:40-18:00</b>	Fei-Chi Zhang	Analysing and predicting streamwise velocity fluctuations in nonstationary atmospheric surface layers using the ARMA-GARCH Model
	<b>18:00-18:20</b>	Kai Peng	Direct numerical simulation of bubbly flows using repulsive force model
	<b>18:20-19:00</b>	<b>Closing remark (Presider: Xiaojing Zheng)</b>	
	<b>19:00-21:00</b>	<b>Dinner Time</b>	