



Society for Computational Fluid Dynamics of the Nose & Airway

Jan 28 | Oklahoma | Virtual

CONFERENCE PROGRAM



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WELCOME

As the principal convenor and on behalf of the entire organizing committee, I welcome you to the 3rd world congress of the Society for Computational Fluid Dynamics of the Nose and Airway, SCONA 2022.

In a packed one-day program, contemporary engineering and the latest technical progress in CFD for sinonasal and pulmonary healthcare with practical clinical applications will be explored. Our faculty consists of leading innovators from across the globe, whose knowledge and insights will appeal to experienced researchers, novices entering the field, and interested observers alike.

Due to the pandemic this conference is held virtually (online-only) and hosted by The School of Chemical Engineering at Oklahoma State University, Stillwater, USA. The organising committee are also proud to announce support by our sponsors NeilMed Pharmaceuticals Australia and ESSS.

We look forward to the pleasure of your company online at 10:00 am on Friday, January 28th, 2022 (US Central Time).

Dr Yu Feng
Chemical Engineering, Oklahoma St University

ABOUT SCONA

Computational Fluid Dynamics (CFD) uses highly sophisticated computer algorithms to simulate the flow of air and particles through complex 3D structures in an accurate, reproducible and scientific manner.

In recent years, researchers have begun to explore the use of CFD in the nose and airway, firstly by modelling airflow patterns, calculating changes in temperature and pressure, and measuring wall shear stress. Next, researchers studied common abnormalities, such as septal deviation, septal perforations and inferior turbinate hypertrophy. Recently, CFD has been used to model and predict the effects of surgery and therapeutic interventions.

It has become clear that CFD is a disruptive technology that is fundamentally changing our understanding of airflow in the human respiratory system and our approach to surgical procedures.

The Society for CFD of the Nose and Airway (SCONA – www.scona.org) was formed to foster knowledge, collaboration and collegiality between researchers in this exciting new field.

PROGRAM

SCONA 2022 VIRTUAL EVENT

SESSION 1: DRUG DELIVERY & AEROSOLS IN THE AIRWAYS (10:00 - 12:00)

No.	TIME	TITLE	SPEAKER
1.0	10:00	Convener's Welcome	Yu Feng
1.1	10:10	KEYNOTE TALK: Nasal sprays: important new insights and discoveries	P Worth Longest
1.2	10:35	Nose-to-brain: targeted drug delivery to the cns via nasal sprays	Ross Walenga
1.3	10:50	Effect of nozzle position on nasal spray penetration beyond the nasal valve	Guillherme Garcia
1.4	11:05	Nasal spray liquid film formation and translocation in adult and paediatric noses	Jinxiang Xi
1.5	11:20	Cfd simulation of airflow and microfibers deposition in two different human respiratory tracts	Omid Abouali
1.6	11:30	In silico study to enhance delivery efficiency of nanoscale nasal spray aerosols to the olfactory region using external magnetic fields	Benjamin Li
1.7	11:40	In vivo validation of an open-source complete-airway cfd model	Rabijit Dutta
1.8	11:50	Vortex identification and its influence on particle exposure characteristics in a realistic human nasal airway	Jingliang Dong
	12:00	End of Session 1	

12:00 - 12:40 BREAKOUT ROOMS

SESSION 2: CLINICAL CFD IN THE NOSE AND AIRWAY (12:20 - 14:20)

No.	TIME	TITLE	SPEAKER
2.1	12:20	KEYNOTE TALK: Nasal obstruction: what are our noses sensing?	Kai Zhao
2.2	12:45	Cough jet dynamics, droplet transport, and inhalability over a ten minute exposure	Hadrien Calmet
		Obstructive sleep apnea in children: neuromuscular control and disease severity	Alister Bates
2.3	13:00	Identifying greatest obstructive sites for surgical correction of nasal obstruction in	Dennis Frank-Ito
2.4	13:15	subjects with cleft lip nasal deformity	
		Calculating breathing effort in the neonatal airway based on imaging parameters	Chamindu Gunatilaka
2.5	13:30	Computational fluid dynamic (cfd) modeling of nasal nitric oxide levels in human	Dennis J Schusterman
2.6	13:40	subjects	
		Investigation of septal deviation effects on nasal airflow on 3 subjects using cfd	Fazil Apaydin
2.7	13:50	method	
		3d models of the nose and the paranasal sinuses (pns) created with the	Walter Koch
2.8	14:00	rhinodiagnost service before and after fess	
		A systematic review of the role of computational flow dynamics in the assessment	Amro Hassaan
2.9	14:10	and management of obstructive sleep apnea	
	14:20	End of Session 2	

14:20 - 14:40 BREAKOUT ROOMS

PROGRAM

SCONA 2022 VIRTUAL EVENT

SESSION 3: FRONTIERS AND NEW RESEARCH (14:40 - 16:40)

No.	TIME	TITLE	SPEAKER
3.1	14:40	KEYNOTE TALK: Computational modeling of particle transport and dispersion – environmental and biological applications	Goodarz Ahmadi
3.2	15:05	Image-guided computational models to better classify uncontrolled asthma	Jessica Oakes
3.3	15:20	Computer model of human respiratory tree: a research and industrial routine, a regulatory reality and a clinical promise	Thierry Marchal
3.4	15:35	Computer simulated person for predicting inhalation exposure and airborne infection	Kazuhide Ito
3.5	15:50	Aid airway obstruction diagnosis with computational fluid dynamics and convolutional neural network	Yu Feng
3.6	16:00	Towards in- situ visualization and virtual surgery in nasal cavities	Moritz Waldmann
3.7	16:10	New techniques and results for conditioning of inhaled air during breathing	Kiao Inthavong
3.8	16:20	Spacial deposition and larynx developmental analysis of 6 year-olds through computational fluid particle dynamics	Emilie Kolewe
3.9	16:30	Shape optimization for respiratory flows through reinforcement learning	Mario Ruettgers
	16:40	End of Session 3	

16:40 VIRTUAL EVENT ENDS