

May 6<sup>th</sup>-10<sup>th</sup>, 2024

Turin, Italy

### **Student Contest in Freeze Drying**

Monday, May 6<sup>th</sup>, 2024 Politecnico di Torino 14:00-18:00 Poli

PoliTo's Student Contest in Freeze Drying

The 2<sup>nd</sup> PoliTo Student Contest on Drying and Freeze-Drying is an international competition organized for the second time by Politecnico di Torino, as a side-event of the ISLFD-24 Conference. It is addressed to M.Sc. and Ph.D. students and aims to stimulate innovative ideas for applications in the area of freeze-drying for pharmaceuticals, sustainable food, energy, and environmental processes.

### Workshop in Freeze Drying

### Tuesday, May 7<sup>th</sup>, 2024

Unione Industriali, Piemonte room 9:00-17:00 Steve Nail & Jos Corver

#### **ISLFD 2024 Conference**

### Tuesday, May 7<sup>th</sup>, 2024

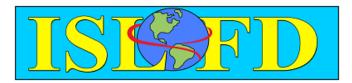
Unione Industriali, Piemonte room

17:30-19:00 Welcome cocktail & Registration

#### Wednesday, May 8<sup>th</sup>, 2024

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Unione Industriali, Piemonte room		
7:45-8:15	Registration & Breakfast	
8:15-8:30	Welcome	
	Kevin <b>Tebrinke</b> , President, <i>ISLFD</i>	
8:30:9:10	Keynote, tBD	
	Steve Nail	
	SESSION I. FUNDAMENTALS [Chair: Bakul Bhatnagar]	
9:10-9:35	Insights into thermal interactions during freezing of pharmaceuticals in vials	
	Roberto Pisano & Fiora Artusio. Politecnico di Torino	
9:35-10:00	Behold the freezing step - insights from fluid dynamics with implications on process control and product quality	
	Miguel <b>Rodrigues</b> . Universidade de Lisboa	
10:00-10:25	Case studies in the use of through-vial impedance spectroscopy (TVIS) in the determination of critical process parameters of a lyophilization process	
	Geoff <b>Smith</b> . De Montfort University	
10.25 10.40	Danal discussion	

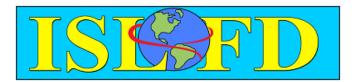
10:25-10:40 Panel discussion



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10:40-11:10	Break & Poster session
	SESSION II. FORMULATION [Chair: Thomas De Beer]
11:10-11:35	Formulation and process optimisation for lyophilised ChAdOx1 vaccines
	Paul <b>Dalby</b> . University College London
11:35-12:00	Formulation and stability of lyophilized mRNA lipid nanoparticles
	Elizabeth <b>Topp</b> . Purdue University
12:00-12:25	Advanced physical characterization and stability of lyophiles: protein/protein
	interaction, water clusters, and solid-state acidity
	Evgenyi <b>Shalaev</b> . <i>AbbVie</i>
12:25-12:50	Predicting solid formulation stability by measuring its fundamental relaxation
	processes
	Marcus Cicerone. Georgia Institute of Technology
12:50-13:10	Panel discussion
13:10-14:10	LUNCH
14:10-14:50	Keynote. 35 years of using and studying freeze drying: what did we learn?
	Gerhard Winter. Ludwig-Maximilians-Universität München
	SESSION III. EMERGING TECHNOLOGIES [Chair: Antonello Barresi]
14:50-15:15	From late-night leftovers to lyophilization: quasi-random field (qRF) microwave
	heating for pharmaceutical freeze-drying
_	Andrew Strongrich. Purdue University
15:15-15:40	GMP-ready continuous and controlled freeze-drying
	Thomas <b>De Beer</b> & Jos <b>Corver</b> . Ghent University & RheaVita
15:40-16:05	Spray freeze-drying of pharmaceuticals: Modeling applications & Challenges
	Israel Borges Sebastiao. Pfizer
16:05-16:20	Panel discussion
16:20-16:50	Break & Poster session
16:50-17:30	Roundtable discussion [Alina Alexeenko, Antonello Barresi, Bakul Bhatnagar, Jos
	Corver, Paul Matejtschuk]

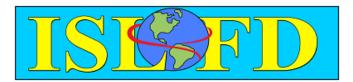


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Thursday, May 9 <sup>th</sup> , 2024		
Unione Industriali, Piemonte room		
8:30-9:10	Keynote on emerging technologies & regulatory aspects	
	Maxwell Korang-Yeboah, FDA	
SESSION IV. PROCESS ANALYTICAL TECHNOLOGIES (I) [Chair: Davide Fissore]		
9:10-9:35	New insights into the stabilization of proteins In lyophilisate	
	Wolfgang Friess. Ludwig-Maximilians-Universität München	
9:35-10:00	Using PAT technologies to optimise lyophilization of biologics	
	Paul <b>Matejtschuk</b> . MHRA	
10:00-10:30	Break & Poster session	
	SESSION IV. PROCESS ANALYTICAL TECHNOLOGIES (II) [Chair: Enric Jo]	
10:30-10:55	The use of Design of Experiments in Lyo Formulation Development	
	Kevin <b>Ward</b> . <i>Biopharma</i>	
10:55-11:20	Vapour flow monitoring in lyophilization. The new PAT tool to develop & validate	
	lyophilisation process under QbD approach	
	Jaume Vallet Xicoy, COMSER	
11:20-11:45	USP <922> Water Activity: Where Is the Water?	
	Applications enabled by rapid nondestructive moisture analysis of freeze-dried product	
	Derek Duncan, Lighthouse Instruments	
11:45-12:00	Panel discussion	
12:00-12:40	Challenges in lyophilisation: competitions of ideas. [Awards ceremony]	
	Antonello Barresi. Politecnico	
12:40-13:30	LUNCH	
13:30-14:30	Spotlight Poster Presentations	
	Bakul <b>Bhatnagar</b> . Pfizer	
14:30-16:00	Poster session & Sponsor exhibition	
17:00	Gala dinner	



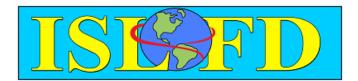
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#### Friday, May 10<sup>th</sup>, 2024

Unione Industriali, Piemonte room 8:30-9:10 Keynote. Freeze-drying and cultural heritage: from the key role to salvage waterdamaged archival and library materials, and archaeological artifacts, to the creation of artworks Davide Fissore. Politecnico di Torino SESSION V. APPLICATIONS [Chair: Roberto Pisano] 9:10-9:35 The challenge of probiotics preservation: strategies and tools to identify stress mechanisms and sites of cell damage induced by dehydration processes Fernanda Fonseca. Université Paris-Saclay 9:35-10:00 Freeze drying of a Microbiome Ecosystem Therapies Sophie Declomesnil. Maat Pharma Learnings from implementation of production scale controlled nucleation Technology 10:00-10:25 Arnab Ganguly. Amgen Panel discussion 10:25-10:40 10:40-11:00 **Break & Poster session** SESSION VI. INDUSTRIAL SESSION [Chair: Ivette Novoa] 11:00-11:25 Use of annealing to optimize freeze-drying cycle of vaccines Bernadette Scutellà. GSK Vaccines 11:25-11:50 Mannitol crystallization impacting protein aggregation in a biological product after technical transfer to new freeze-drier with automatic loading/unloading system Leonardo Mattone. Sanofi 11:50-12:15 Building Manufacturing Intelligence into Freeze-Drying Pierre-Luc Belanger. Pfizer 12:15-12:40 Smart URS and minimized testing and gualification process for Lyos Maik **Guttzeit**. Bayer 12:40-12:50 Panel discussion 12:50-13:40 LUNCH SESSION VII. EQUIPMENT [Chair: Zhongping Huang] 13:40-14:00 Lyophilisation of mRNA Vaccines Tom Wang. Tofflon 14:00-14:20 A digital transformation journey for freeze-drying Giacomo Guidi. IMA Life 14:20-14:30 Panel discussion

SESSION VIII. YOUNG SCIENTISTS



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14:30-15:30 The three best poster abstracts Fiora **Artusio**. Politecnico di Torino

15:30-16:00 Closing and remarks Kevin **Tebrinke**, President, ISLFD