



2024 ISLFD International Conference

May 6th-10th, 2024

Turin, Italy

Student Contest in Freeze Drying

Monday, May 6th, 2024

Politecnico di Torino

14:00-18:00

PoliTo's Student Contest in Freeze Drying

The 2nd 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 7th, 2024

Unione Industriali, Piemonte room

9:00-17:00

Steve **Nail** & Jos **Corver**

ISLFD 2024 Conference

Tuesday, May 7th, 2024

Unione Industriali, Piemonte room

17:30-19:00 *Welcome cocktail & Registration*

Wednesday, May 8th, 2024

Unione Industriali, Piemonte room

7:45-8:15 *Registration & Breakfast*

8:15-8:30 *Welcome*
Kevin **Tebrinke**, President, ISLFD

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 **Rodrigues**. *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 **Smith**. *De Montfort University*

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	<i>Formulation and process optimisation for lyophilised ChAdOx1 vaccines</i> Paul Dalby . University College London
11:35-12:00	<i>Formulation and stability of lyophilized mRNA lipid nanoparticles</i> Elizabeth Topp . Purdue University
12:00-12:25	<i>Advanced physical characterization and stability of lyophiles: protein/protein interaction, water clusters, and solid-state acidity</i> Evgenyi Shalaev . AbbVie
12:25-12:50	<i>Predicting solid formulation stability by measuring its fundamental relaxation processes</i> Marcus Cicerone . Georgia Institute of Technology

12:50-13:10 Panel discussion

13:10-14:10 LUNCH

14:10-14:50	<i>Keynote. 35 years of using and studying freeze drying: what did we learn?</i> Gerhard Winter . Ludwig-Maximilians-Universität München
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SESSION III. EMERGING TECHNOLOGIES [Chair: Antonello Barresi]	
14:50-15:15	<i>From late-night leftovers to lyophilization: quasi-random field (qRF) microwave heating for pharmaceutical freeze-drying</i> Andrew Strongrich . Purdue University
15:15-15:40	<i>GMP-ready continuous and controlled freeze-drying</i> Thomas De Beer & Jos Corver . Ghent University & RheaVita
15:40-16:05	<i>Spray freeze-drying of pharmaceuticals: Modeling applications & Challenges</i> Israel Borges Sebastiao . Pfizer

16:05-16:20 Panel discussion

16:20-16:50 Break & Poster session

16:50-17:30	<i>Roundtable discussion</i> [Alina Alexeenko, Antonello Barresi, Bakul Bhatnagar, Jos Corver, Paul Matejtschuk]
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Thursday, May 9th, 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 Matejtschuk, 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 Ward, Biopharma

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 Bhatnagar, Pfizer

14:30-16:00 **Poster session & Sponsor exhibition**

17:00-... **Gala dinner**



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8:30-9:10 *Keynote. Freeze-drying and cultural heritage: from the key role to salvage water-damaged 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

10:00-10:25 *Learnings from implementation of production scale controlled nucleation Technology*

Arnab Ganguly. Amgen

10:25-10:40 *Panel discussion*

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 qualification 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