



WAGENINGEN
UNIVERSITY & RESEARCH

Program booklet

EurCdryng 2025

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Organizing Committee



Prof. Maarten Schutyser (chair)
Wageningen University



Ass. Prof. Patrick Wilms
Wageningen University



Dr. Zulhaj Rizki
Wageningen University



Dr. Joanne Siccama
Wageningen Food & Biobased Research



Dr. Kevin van Koerten
NIZO



Hedy Wessels
WessEvents

Keynote Speakers



Dr. Jewe Schröder
Danone
The Netherlands



Prof. Stefan Toepfl
University of Applied Sciences Osnabrück
Elea GmbH
Germany



Dr. Benjamin Zühlsdorf
Danish Technological Institute
Denmark



Prof. Stefan Heinrich
TU Hamburg
Germany



Prof. Gregorz Musielak
Poznan Uni. of Technology
Poland



Prof. Roberto Pisano
Politecnico di Torino
Italy



Martin Tukker
Joa Air solutions
The Netherlands



Prof. Maike Baltussen
TU Eindhoven
The Netherlands

Program

Sunday, 6 July 2025 - WICC¹

Registration and welcome drinks

17:00 - 19:00

Monday, 7 July 2025 - Omnia²

Registration

8:30 - 9:30

Welcome speeches

9:30 - 9:55

Keynote lecture³

9:55 - 10:20

Dr. Jewe Schröder

Coffee break

10:20 - 10:45

Presentations³ :

Spray drying I

Presentations⁴ :

**Fundamentals, modelling
and simulations I**

10:45 - 11:30

11:35 - 12:05

Pitch presentations³

12:05 - 13:30

Lunch and posters

13:30 - 13:55

Keynote lecture³

Prof. Stefan Toepfl

14:00 - 15:00

Presentations³ :

**Electrically driven
dewatering and drying I**

Presentations⁴ :

Process modelling

15:00 - 15:30

Coffee break

15:30 - 16:30

Presentations + panel

**discussions³ :
Electrically driven
dewatering and drying II**

Presentations + panel

**discussions⁴ :
Product formulation and
properties**

16:35 - 17:00

Keynote lecture³

Dr. Benjamin Zühlendorf

17:00 - 18:00

Group photo and social drinks

17:30 - 19:00

EFCE WP meeting⁴ (invitees only)



NWGD
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RESEARCH & INNOVATION

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ANDRITZ

Tuesday, 8 July 2025 - Omnia²

9:00 - 9:25

Keynote lecture³
Prof. Stefan Heinrich

9:30 - 10:45

Presentations³ :
Spray Drying II

Presentations⁴ :
**Environmental assessment
& sustainability
performance**

10:45 - 11:10

Coffee break

10:45 - 11:30

Keynote lecture³
Prof. Grzegorz Musielak

11:35 - 12:05

Pitch presentations³

12:05 - 13:30

Lunch and posters

13:30 - 13:55

Keynote lecture³
Prof. Roberto Pisano

14:00 - 15:00

Presentations³ :
Freeze drying

Presentations⁴ :
Process control

15:00 - 15:30

Coffee break

15:30 - 18:00

Excursions

19:00 - 23:00

Conference dinner and party at WICC¹

Wednesday, 9 July 2025 - Omnia²

9:00 - 9:25

Keynote lecture³

Martin Tukker

9:30 - 10:45

Presentations³ :

Fundamentals, modelling
and simulations II

Presentations⁴:

Novel dewatering and
drying

10:45 - 11:15

Coffee break

11:15 - 11:40

Keynote lecture³

Prof. Maïke Baltussen

11:40 - 12:15

Closing and awards³

12:15 - 13:15

Lunch and goodbye

Locations

¹ WICC - Wageningen International Congress Centre, Lawickse Allee 9, 6701 AN Wageningen.

² Omnia building - Wageningen University, Hoge Steeg 2, 6708 PH Wageningen.

³ Podium - Omnia building.

⁴ Momentum room - Omnia building.



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Keynote Lectures

Dr. Jewe Schröder

Danone Research and Innovation , The Netherlands

“The power of teamwork in transferring spray drying research from fundamental to applicable”

chair : Maarten Schutyser

Dr. Stefan Toepfl

University of Applied Sciences Osnabrück and Elea GmbH, Germany

“Pulsed electric field impact on product quality during convective and freeze drying”

chair : Joanne Siccama

Dr. Benjamin Zühlsdorf

Danish Technological Institute, Denmark

“Decarbonizing industrial drying - The future is electric”

chair : Patrick Wilms

Prof. Stefan Heinrich

Hamburg University of Technology (TUHH), Germany

“Challenges in understanding, modelling and control of particle formulation by spray granulation”

chair : Zulhaj Rizki

Keynote Lectures

Prof. Grzegorz Musielak

Poznan University of Technology, Poland

“Hybrid Drying Methods: the Pros, the Cons and The Challenges”

chair : Kevin van Koerten

Prof. Roberto Pisano

Politecnico di Torino, Italy

“Challenges in Freeze-Drying of Biological Drugs in Unit-Dose Formats:
Moving from Batch to Continuous”

chair : Patrick Wilms

Martin Tukker

Joa air solution, The Netherlands

“How to improve Drying Processes Emission Control & Heat Recovery”

chair : Zulhaj Rizki

Prof. Maike Baltussen

Eindhoven University of Technology, The Netherlands

“How modelling will improve our understanding of droplet size”

chair : Maarten Schutyser

Presentations

Monday, 7 July 2025

Spray Drying I

chair : Andrew Bayley

Sebastian Höhne

“CFD simulation of the temperature-time-history of spray droplets during spray drying for the design of a hanging droplet setup”

Suzan de Leeuw

“Exploring agglomeration: the role of fines particle size and material”

David Herbert Panduro Vela

“Particle formation using anisotropic nanosilica particles via single droplet drying”

Fundamentals, modelling and simulation I

chair : Ian Kemp

Ian Kemp

“Developments in industrial dryer selection procedures”

David Rieder

“Impact of the pore space morphology on the redistribution of dissolved species during the drying of porous catalyst supports”

Blaz Kamenik

“Modeling of latent heat release and virtual ice growth in lyophilizer condensers during freeze-drying”

Electrically driven dewatering and drying

chair : Kitty Nijmeijer

Alexander Christopher Lamb

“Efficient electro-osmotic dewatering of biomass for the food industry”

Elnaz Vaezzadeh

“Microwave vacuum drying for food processing applications”

Aza Alawi

“Electrical drying of biomass by electro-osmosis and electrohydrodynamic drying: effect of internal transport phenomena”

Thomas Deleau

“Experimental approach for studying the drying kinetics of charged droplets”

chair : Zulhaj Rizki

Henry Sabarez

“Ultrasound-assisted low temperature drying of materials”

Zulhaj Rizki

“Modelling electrohydrodynamic (EHD) drying for thin food films”

Panel discussions

Stefan Toepfl

Remko Boom

Geert-Jan van der Kieboom

Jeroen den Hollander

Process Modelling

chair : Patrick Perré

Lucrezia Angelone

“Model-based approach for the development and the scale-up of freeze-drying processes: a case study”

Nicole Vorhauer-Huget

“Pore network study of freeze-drying”

Vincenzo Massotti

“Impact of thermal interactions on vial-to-vial uniformity and quality of freeze-dried pharmaceuticals”

Patrick Perré

“Efficient modeling of coupled transfer in packed beds application as moisture buffer for intermittent drying”

Product formulation and properties

chair : Katarzyna Samborska

Teresa Kurtz

“Increasing food powder sustainability through re-formulation with plant-based ingredients: challenges and opportunities in industrial application”

Muhammad Tayyab

“Digital modelling of physio-chemical changes and drying kinetics for purple carrots and golden kiwifruit”

Giana Almeida

“Study of the stability of postbiotic powders in relation to their composition and storage conditions”



Sergio Luis Parra-Angarita

“Dehydrated sewage sludge textural and viscoelastic changes during its drying: focus on the sticky phase”

Tuesday, 8 July 2025

Spray Drying II

chair : Evangelos Tsotsas

Reinhard Kohlus

“Investigation of stable process conditions for the spray drying of amorphous materials with superheated steam”

Johannes Vincent Bürger

“Simulation of agglomeration in spray drying with fines return”

Avi Levy

“Modelling porous shell formation in bidisperse suspension droplet drying”

Michal Kremski-Smejda

“Investigation of agglomeration processes in counter-current spray drying with fine particle recirculation”

Sergio Falla Hoyos

“Experimental study of pulsating burner for the drying industry”

Environmental assessment and sustainability performance

chair : Juray de Wilde

José Luis Ares Sainz

“Driving sustainability and feasibility for drying technologies in the paper and wood industries through life cycle assessment and techno-economic analysis”

Reinier van Dijke

“Lübbes energie upcycling system”

Sabrina Dusek

“Enhancing energy efficiency of paper production by superheated steam drying”

Peter Quaak

“Heat pump integration strategies for a paper mill”

Varshil Dalal

“CO₂ heat pumps in the drying industry: identifying the break-even point between trans-critical and supercritical operation”

Freeze drying

chair : Ruud van der Sman

Ruihao Zhu

“Freeze-drying for production of edible lightweight materials for robot applications”

Lorena Pasero

“Spray freeze-drying of inhalable monoclonal antibody powders: formulation strategies for enhanced stability and aerodynamic performance”

Mathias Hilmer

“Dynamic microwave freeze-drying – impact of drum rotation and particle size”

Roberto Bruttini

“Freeze drying as stabilizing and preserving process after consolidation with peg of different impregnated archaeological wood reports”

Process control

chair : Reza Kharaghani

Laurent Forny

“Science of reconstitution: recent progress and upcoming challenges”

Laura - Garcia-Llobodanin

“Effect of drying on the head rice yield of rice with different grain moisture contents”

Hidra Nawfal

“Development of an IOT-enabled system for remote monitoring and control of a solar dryer with automated alerts for tomato drying using node-red platform”

Andreas Wolff

“A data-driven model as a simulation platform for reinforcement-based dryness control of a pilot paper-making machine using active learning”

Wednesday, 9 July 2025

Fundamentals, modelling and simulation II

chair : Reinhard Kohlus

Ruud van der Sman

“Buckling during drying of core-shell cylinders”

Luciano Teresi

“Modeling drying-induced skin effects in soft disks”

Reza Kharaghani

“The effect of thin liquid film formation on the evaporation of fluorinated surfactant droplets”

Nicholas McCharty

“Drying and Desolvation of Organic Hydrate and Solvate Crystals”

Tariq Mahmud

“CFD modelling of a spray drying process using single droplet drying and crystalline transformation models in a lab-scale dryer”

Novel dewatering and drying

chair : Juan Carcel

Manal Lehmadi

“Sustainable valorization of black soldier fly (*hermetia illucens*) larvae through green drying technology: 3E analysis and quality assessment”

Nikunj Kantibhai Naliyadhara

“Development of novel sono-plate technology for accelerated low-temperature drying of foods”

Anne Teiwes

“Comparative study on continuous fluidized bed drying of polymer granules with hot air and superheated steam”

Geert Raymaekers

“Implementation of a superheated steam drying with heat pump for building bricks”

Juray de Wilde

“High-G operation my means of vortex chambers for efficient drying, coating, agglomeration and spray drying”

Posters

with pich presentations

Monday, 7 July 2025

chair : Joanne Siccama

- 1 **Özgül Altay**
“Impact of microwave pre-drying conditions on the physical and nutritional quality of puff dried sultana grapes”
- 2 **Adriaan ten Brinke**
“Closed loop adiabatic drying based on a liquid desiccant air dehumidifier”
- 3 **Ahmet Tarık Can**
“Comparison of drying methods for turkish pasta enriched with beetroot: effects on antioxidant properties, color, and moisture content”
- 4 **Ecenaz Gülen**
“Microencapsulation of sulforaphane and curcumin extract mixtures by spray drying and the use of microcapsules in functional beverage production”
- 5 **Anne Swinkels**
“Dried jackfruit: a structural ingredient in plant-based meat alternatives”
- 6 **Ayumi Schober**
“Improving pulverized sewage sludge production with cement kiln dust”
- 7 **Naz Arsoy**
“Advanced acorn drying: photovoltaic-assisted led light integrated hot air and infrared drying”

Ana Kemala Putri Jauhari

8

“Understanding the mechanism of d-limonene release during encapsulation by spray drying: a thin film drying approach”

Dominik Mierzwa

9

“Convective drying of apple peel as a preservation procedure in fruit waste valorisation”

Tuesday, 8 July 2025

chair : Kevin van Koerten

Judith Ham

10

“Electrohydrodynamic (EHD) drying of thin films”

Kamila Szymczak

11

“Overview of the properties of powders produced from sugar-rich materials by spray drying method”

Sarthak Mehta

12

“Electro-osmotic dewatering using polymeric membranes”

Raquel da Silva Simao

13

“External air convection in cast-tape drying of açai pulp: experimental analysis and mathematical modelling”

Pratik Nayi

14

“Beetroot pomace as a functional ingredient: impact of drying methods on quality and usability”

Santeri Mäntynen

15

“Drying energy savings potential of fibrous alcohol-water mixtures”

Sanaz Aghaei

16

“The effects of airflow characteristics on a single droplet evaporation-a 3d numerical modelling using local front reconstruction method”

- 17 ***Hidra Nawfal***
 “Moisture sorption characteristics of black soldier fly (*hermetia illucens*) larvae: sorption isotherms and mathematical modeling of hygroscopic behavior”
- 18 ***Camara M’Boirick***
 “The implementation of a modular system for the modeling and control of temperature and humidity in a hybrid solar-electric dryer”

posters only

- 19 ***Reinhard Kohlus***
 “Fluidized bed agglomeration in multistage spray dryers”
- 20 ***Michael Lauermann***
 “Brick drying with heat pumps: development of an operating strategy based on dynamic simulation”
- 21 ***Raul Favaro Nascimento***
 “Formulation of hetero-aggregates in binder-free fluidized bed spray agglomeration”
- 22 ***Nathalie Claisse***
 “New co-drying method for the production of stable bacteriophages and yeast product formulation”
- 23 ***Katarzyna Samborska***
 “The effect of carrier addition and spray drying temperature on the stability of kiwiberry powders”
- 24 ***Dominik Mierzwa***
 “Effect of hybrid drying conditions on kinetics and quality of banana fruits”

Pedro Augusto

25

“Combining pulsed electric field (PEF) pre-treatment and ultrasound assisted convective drying to obtain potato snacks”

Naz Arsoy

26

“Evaluation of improvement potential in food drying systems”

Yuri Moratelli Piske

27

“Microwave drying”

Selvaraj Chinnathambi

28

“Effect of counter ions on the electroosmotic water transport in electrodialysis and its role in biomass drying”

Juan A. Cárcel

29

“PEF pre-treatment and ultrasound-assisted hot air drying for optimization of drying kinetics and preservation of nutritional quality in apricots”

Michel van der Pal

30

“Multicylinder paper drying model development and validation using measurement data from sheet paper machine under relevant conditions”

Esli Diepenbroek

31

“How crosslinker content influences the electroresponse of polyelectrolyte brushes”

Patrick Perré

32

“The gas pressure gradient induced by vapor diffusion in porous media: impact for the cup method and during drying”

Ian Kemp

33

“When statistical design of experiments (DOE) is wrong”

Pratik Nayi

34

“Development of the novel artificial sun light drying system with a concept of sunshine anytime to replace sun drying”

- 35 **Juan A. Cárcel**
“Monitoring persimmon color evolution during airborne ultrasonic-assisted low-temperature drying”
- 36 **Mónica María Umaña Zamora**
“Sustainable microencapsulation of oil with orange residue flour: microstructure of reconstituted emulsions”
- 37 **Sergio Luis Parra-Angarita**
“Influence of textural and viscoelastic properties on dehydrated sewage sludge drying behavior”
- 38 **Sergio Luis Parra-Angarita**
“Moisture distribution in faecal sludges”
- 39 **Juray de Wilde**
“Spray drying using a radial multizone dryer – first pilots scale tests and findings”
- 40 **Azeddine Fantasse**
“Convective Drying of Hydroxide Sludge: Evolution of Drying Area Due to Shrinkage and Crack Formation”
- 41 **Anneloes van Boven**
“A multi-scale investigation on protein addition toward steering agglomeration and yield in spray drying”
- 42 **Jure Žigon**
“Monitoring of the mechanical properties of ash wood during convective drying”
- 43 **Straže Aleš**
“Investigation of the drying kinetics of thin wooden lamellas dried with infrared radiation and hot air”
- 44 **Tibor Poos**
“Determination of the adsorption and desorption isotherms of zeolite lta(4a) by gravimetric method”



Faizan Ahmad (45)

“Crystallization of sodium chloride with organic impurities:
a step towards understanding crystallization in respiratory
aerosols”

Fangjie Zhang (46)

“Limitations and opportunities for single droplet drying
models in spray dryer CFD predictions”

Giana Almeida (47)

“Technological performance of new bio-based drying supports
for encapsulation of interesting compounds”

Excursions

meeting point : Omnia at 15:15

Hosokawa Micron B.V.

Gildenstraat 26, 7005 BL Doetinchem

contact person : Anne Swinkels

meeting point : Omnia at 15:30

Wageningen University & Research

Laboratory of Food Process Engineering and Food & Biobased Research

Axis Building - Bornse Welanden 9, 6708 WG Wageningen

contact person : Joanne Siccama

Algae Parc

Bornsesteeg 10, Building 112

6721 NG Bennekom

contact person : Zulhaj Rizki

NIZO Food Research

Kernhemseweg, 26718 ZB Ede

contact person : Kevin van Koerten

meeting point : WICC at 16:00

Wageningen City Tour

contact person : Patrick Wilms

Notes:

1. Participation is limited to those who have already registered.
2. For the excursion to Hosokawa Micron B.V., the committee will pick up participants at Omnia at 15:15.
3. For other company and university excursions, the committee will pick up participants at Omnia at 15:30.
4. For the city tour, attendees are expected to make their own way to WICC and meet the committee at 16:00.

