

# International Chain Elongation Conference

ICEC2020

26<sup>th</sup> & 27<sup>th</sup> October 2020

Hosted by Environmental Technology Chair Group  
of Wageningen University & Research, The Netherlands



[www.icec2020.nl](http://www.icec2020.nl)

## 26<sup>th</sup> October Monday

09:00 AM

### Opening

Associate Prof. David Strik (Chairman)

Wageningen University & Research - The Netherlands

15min

09:15 AM

### Key-notes

9:15 Niels van Stralen (Keynote speaker)

t.b.c. • ChainCraft - The Netherlands

9:45 Prof. Wanqian Guo (Keynote speaker)

t.b.c. • Dean of Department of Environmental Engineering, Harbin Institute of Technology - School of Environment  
State Key Laboratory of Urban Water Resource & Environment - China

1h 0min

10:15 AM

### Biorefinery development & integration in Circular Economy I

10:15 Fabian de Wide

CAPRA: piloting biological chain elongation of syngas-based bio-ethanol • OWS nv - Belgium

15min

10:30 AM

### Networking break Brella video call 15min

10:45 AM

### Biorefinery development & integration in Circular Economy II

10:45 Prof. Largus Angenent (Speaker)

INVITED t.b.c. • University of Tübingen, Germany & Max Planck Institute for Developmental Biology

11:00 Fernando Silva (Speaker)

Production of caproic acid from fruit waste at pilot scale • Faculdade de Ciências e Tecnologia da Universidade  
Nova de Lisboa - Portugal

11:15 Clara Fernando Focillas (Speaker)

Recovery of carboxylates via anion exchange chromatography • Aalborg University - Denmark

11:30 Dr. Jiajie Xu (Speaker)

Direct medium-chain carboxylic-acid oil separation from a bioreactor by an electrodialysis/phase separation cell •  
Cornell University - USA & KAUST King Abdullah University of Science and Technology - Saudi Arabia

11:45 Shilva Shrestha (Speaker)

Role of dynamic membrane development on chain elongation for medium chain carboxylic acids production •  
University of Michigan - USA

1h 15min

12:00 PM

**Networking break** Brella video call 1h 0min

01:00 PM

### Bioreactor engineering and bioprocess development I

01:00 Associate Prof. Piotr Oleskowicz-Popiel (Speaker)

INVITED t.b.c. • Poznan University of Technology, Poland

01:15 Corine Nzeteu (Speaker)

Optimum caproic acid production initiated from homogenised and acidified granular sludge is influenced by lactic:butyric acid ratio and concentration • National University of Ireland Galway - Ireland

01:30 Dr. Nathaniel Fortney (Speaker)

Characterization of carboxylate producing microbial communities • University of Wisconsin-Madison - USA

01:45 Dr. Pieter Candry (Speaker)

Mildly acidic pH selects for chain elongation over propionic acid production in lactic acid fermentation • Center for Microbial Ecology and Technology (CMET), Ghent University - Belgium

02:00 Flávio Baleeiro (Speaker)

H<sub>2</sub>/CO<sub>2</sub> gas recirculation to improve lactate-to-caproate selectivity • Helmholtz Centre for Environmental Research – UFZ; Karlsruhe Institute of Technology - KIT - Germany

02:15 Kevin Sabbe (Speaker)

Flow cytometry as tool to monitor chain elongation performance • Center for Microbial Ecology and Technology (CMET), Ghent University, Belgium

02:30 Dr. Byoung Seung Jeon (Speaker)

6x scale-up while maintaining stable production of n-caprylic acid • Center for Applied Geoscience, University of Tübingen - Germany

1h 45min

02:45 PM

**Networking break** Brella video call 15min

03:00 PM

### Bioreactor engineering and bioprocess development II

03:00 Prof. Daniel Noguera (Speaker)

INVITED t.b.c. • University of Wisconsin-Madison - USA

03:15 Patrick Schweizer (Speaker)

Continuous carbon chain elongation from one carbon compounds • Center for Applied Geoscience, University of Tübingen - Germany

03:30 Bin Liu (Speaker)

Machine learning identifies bioindicators for predicting caproate and caprylate productivity in microbial chain elongation • Department of Environmental Microbiology, Helmholtz Centre for Environmental Research – UFZ, Leipzig, Germany

03:45 Riccardo Bevilacqua (Speaker)

Identifying chain elongation processes during the mixed-culture fermentation of proteins • Universidade de Santiago de Compostela - Spain

04:00 Kasper de Leeuw (Speaker)

Enriching Microbiomes for the Production of Branched Medium Chain Carboxylates and Alcohols • Wageningen University & Research - The Netherlands

04:15 Dr. Heike Straeuber (Speaker)

Retrofitting agricultural biogas plants into biorefineries – medium-chain carboxylates production from crop silage • Helmholtz Centre for Environmental Research – UFZ - Germany

1h 30min

04:30 PM

**Networking break** Brella video call 15min

04:45 PM

## Bioreactor engineering and bioprocess development POSTERS I

04:45 Sharon Villegas-Rodríguez (Speaker)

Medium-chain carboxylic acids production using consortia from winery wastewater, ruminal fluid and granular sludge • Laboratory for Research on Advanced Processes for Water Treatment, Unidad Académica Juriquilla, Instituto de Ingeniería, Universidad Nacional Autónoma de México

04:50 Yujia Lin (Speaker)

Effect of domestication and microbial community on medium chain fatty acids production from Chinese liquor distillers' grain • University of Science and Technology Beijing- China

15min

05:00 PM

## Key-note

05:00 Prof. Mark Holtzapple (Keynote speaker)

Carboxylate Platform; Conversion of Biomass to Chemicals and Fuels • Texas A&M University - USA

30min

05:30 PM

**QUIZ** Who, what, where... ? prizes to win! 30min

06:00 PM

**Networking break** Brella video call 15min

## Tuesday 27<sup>th</sup> October

09:00 AM

## Key-note

09:00 Prof. Diana Sousa (Keynote speaker)

t.b.c. • Laboratory of Microbiology, Wageningen University & Research - The Netherlands

30min

09:30 AM

## Microbiology, pathways, informatics, genetics I

09:30 James Heffernan (Speaker)

Revamping the model CO-fermenting acetogen, *Clostridium autoethanogenum*, as a CO<sub>2</sub>-valorisation platform • Australian Institute of Bioengineering and Nanotechnology, The University of Queensland - Australia

09:45 Dr. Sabine Kleinsteuber (Speaker)

Genomic and metabolic features of three novel *Clostridia* isolates involved in lactate-based chain elongation • Helmholtz Centre for Environmental Research – UFZ - Germany

10:00 Dr. Sofia Esquivel-Elizondo (Speaker)

The isolate *Caproiciproducens* sp. 7D4C2 produces n-caproate at mildly acidic conditions from hexoses: genome and rBOX comparison with related strains and chain-elongating bacteria • Max Planck Institute for Developmental Biology - Germany

10:15 Kasper de Leeuw (Speaker)

Methanol-based chain elongation of acetate to *i/n*- butyrate at thermodynamic equilibrium of isomerization by an enriched microbiome • Wageningen University & Research - The Netherlands

1h 0min

10:30 AM

**Networking break** Brella video call 15min

10:45 AM

## Microbiology, pathways, informatics, genetics II

10:45 Prof. Byoung-In Sang (Speaker)

Multi-omics study on chain elongation processes for medium chain carboxylic acids • Department of Chemical Engineering Hanyang University, Korea

11:00 Camille Petrognani (Speaker)

Production of isobutyric acid from methanol by *Clostridium Luticellarii* • Center for Microbial Ecology and Technology (CMET), Ghent University - Belgium

11:15 Prof. Anca Delgado (Speaker)

The occurrence and ecology of microbial chain elongation of carboxylates in soils • Arizona State University - USA

11:30 Assistant Prof. Matthew Scarborough (Speaker)

Simulating chain elongation with constraint-based metabolic modelling • University of Vermont - USA

1h 0min

11:45 AM

## Microbiology, pathways, informatics, genetics POSTERS

11:45 Hyunjin Kim (Speaker)

Co-culture of *Lactobacillus* and *Megasphaera* species to caproic acid by mimetic microbiome system using food wastes • Hanyang university - Republic of Korea

11:50 Seongcheol Kang (Speaker)

Caproic acid production from lactate using *Megasphaera hexanoica* • Hanyang university - Republic of Korea

15min

12:00 PM

Networking break [Brella video call](#) 1h 0min

01:00 PM

## Bioreactor engineering and bioprocess development III

01:00 Prof. Ramon Ganigue (Speaker)

INVITED Chain elongators, friends and foes • Center for Microbial Ecology and Technology, Ghent University - Belgium

01:15 Dr. Esteban Marcellin (Speaker)

Understanding oscillation in gas fermentation • Australian Institute for Bioengineering and Nanotechnology, The University of Queensland - Australia

01:30 Associate Prof. David Strik (Speaker)

Microbial recycling of biodegradable plastic PLA (poly lactic acid) into a spectrum of bioplastic precursors by anaerobic fermentation • Wageningen University & Research - The Netherlands

01:45 Xindi Fu (Speaker)

The effect of nano zero-valent iron on chain elongation • Tsinghua university - China

02:00 Quinten Mariën (Speaker)

Impact of substrate concentration on granular fermentation for caproic acid production • Center for Microbial Ecology and Technology, Ghent University - Belgium

02:15 Vicky De Groof (Speaker)

Food waste served three ways: butyric, lactic or caproic acid • EPSRC Centre for Doctoral Training in Sustainable Chemical Technologies, University of Bath - UK

02:30 Carlos Contreras Davila (Speaker)

Effects of zero-valent iron nanoparticles on lactate-based chain elongation • Wageningen University & Research - The Netherlands

1h 45min

02:45 PM

Networking break [Brella video call](#) 15min

03:00 PM

## Bioreactor engineering and bioprocess development IV

03:00 Assistant Prof. Ludovic Jourdin (Speaker)

INVITED Microbial Electrosynthesis - a techno-economic driven roadmap towards implementation • TU Delft - The Netherlands

03:12 Sanne de Smit (Speaker)

Boosting a biocathode by analysis: the invasive effects of cyclic voltammetry on bioelectrochemical chain elongation • Wageningen University & Research - The Netherlands

03:30 Meritxell Romans (Speaker)

Bio-electroCO<sub>2</sub> recycling into C<sub>4</sub>-C<sub>6</sub> products through a two-step process • LEQUiA - Institute of the Environment, University of Girona - Spain

03:45 Diana Calvo (Speaker)

The role of inorganic carbon in a hydrogen-based Membrane Biofilm Reactor • Arizona State University - USA

04:00 Aide Robles (Speaker)

Harnessing Hydrogen Production during Microbial Chain Elongation for Reduction of Oxidized Groundwater Contaminants • Arizona State University - USA

04:15 Thiago Ravanini do Nascimento (Speaker)

Modelling fermentative hydrogen production of cheese wastewater • University of São Paulo - Brazil

1h 30min

04:30 PM

**Networking break** Brella video call 15min

04:45 PM

**Bioreactor engineering and bioprocess development POSTERS II**

04:45 Carla Fernández (Speaker)

Parameters affecting chain elongation from syngas bioconversion • University of La Coruña - Spain

04:50 Dr. Naresh Amradi (Speaker)

Medium Chain Fatty Acids Production Integrated with Continuous Biohydrogen Process: A Closed Loop Approach • Yonsei University - Republic of Korea

15min

05:00 PM

**Round Table - Connecting Communities** industrial participants on stage

05:00 Niels van Stralen (Panelist)

ChainCraft - The Netherlands

30min

05:30 PM

**Closure** awards, special issue, next meet-up?

Associate Prof. David Strik (Chairman)

Wageningen University & Research - The Netherlands

30min

06:00 PM

**Networking final - see you next time!** 15min

