



Newsletter No. 26

International PEF School in Osnabrück and Quakenbrück, Germany

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From May 14 to May 18, 2018, the 5th International PEF School on Pulsed Electric Field Applications in Food and Biotechnology took place in Osnabrück, Germany, organized by the University of Applied Sciences in cooperation with the German Institute of Food Technologies (DIL). The week included lectures and practical sessions on Pulsed Electric Field (PEF) applications in food industry and biomedicine. Highlight of the week was a group visit to Wernsing Feinkost GmbH, who already operate 3 industrial PEF units for their potato processing.

In total, 30 international participants and speakers were present, including academics and representatives from the food industry. The participants were instructed on the basics of PEF within theoretical lessons, and deepened their new knowledge in practical courses at DIL and Elea.

The lectures commenced with an interesting overview of PEF history. Further topics in the lectures covered the effect of PEF on plant tissues, microbial inactivation, and drying processes, as well as insights on PEF technology in juice and snacks production, and in biomedical applications. This was complemented by overviews on pulse generation, the full range of emerging technologies, the importance of a life cycle assessment (LCA) study, legislative aspects, as well as industrial equipment & PEF equipment suppliers on the market.

The factory of the industrial partner Wernsing Feinkost GmbH was paid a visit in order to observe their PEF equipped potato production lines in action. They produce different potato products, French fries and baked potato among others, and started to enhance the efficiency of their production lines by implementing PEF systems back in 2012. To date they have installed 3 PEF systems, all of different capacities in their lines. All participants were fascinated and impressed to see PEF systems on an industrial scale in full production.

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**3rd World Congress on Electroporation
& Pulsed Electric Fields in Biology, Medicine
& Food and Environmental Technologies**
Toulouse, France

September 3–6, 2019



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For the practical course, the PEF system manufacturer Elea opened the doors of its test centres to demonstrate numerous applications of PEF in the food industry, such as the simplified potato processing and the impact on potato and veggie chips production. Various methods for obtaining a higher yield in juice extraction together with the gentle preservation of fruit juices have been observed at the Elea test centre using their pilot-scale PEF equipment. In addition, the effect of pulsed electric fields on plant tissue was examined by means of cell disruption index measurement. At DIL, the participants were able to observe shockwave treatment in operation for various products ranging from meat to an egg. Moreover, they had the opportunity to learn more about LCA for PEF.

The school programme concluded with a variety of extracurricular activities to expand and intensify networking between participants. These activities included a visit to the laboratories of the University of Applied Sciences in Osnabrück, and a welcome evening. A night watchman tour through the Old Town streets of Osnabrück was one of the highlights. Spending time together at a local fair and the dinner on the last evening brought the week's activities to a successful conclusion.

Last but not least, the agenda featured the attribution of the PEF School Awards. During the PEF School, the external researchers had the opportunity to give a presentation of their most recent research results. An independent jury evaluated the presentations, and we are proud to announce Anna-Sophie Stübler (DIL, Germany), Jessica Genovese (University of Bologna, Italy), and Alica Lammerskitten (Elea, Germany) as award winners. Congratulations!

The PEF School was well received and will be held again next year in Cesena, Italy, at the University of Bologna, June 3 – 7, 2019. Mark your calendar! For more information you are welcome to contact Urszula Tylewicz by email at urszula.tylewicz@unibo.it.

Forthcoming events

Fundamental & Applied Bioelectronics Workshop

Norfolk, July 9 – 12, 2018

<http://2018BioelectronicsWorkshop.com>

International Nonthermal Processing Workshop and Short Course

Sorrento, September 25 – 26, 2018

<http://nonthermal.prodalricerche.com>

Electroporation-Based Technologies and Treatments

Ljubljana, November 11 – 17, 2018

<http://2018.ebtt.org>

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*PEF technology expert Julian Witt from Elea demonstrates the benefits of a juice production application.
Photo by Aileen Rogge*

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