5th PEF school

The organisers

elea

Elea is the world's leading provider of Pulsed Electric Field Systems (PEF) to the food, beverage & scientific sectors. Through dedicated research spanning many years, we have refined our systems and brought astonishing change to the food and beverage sectors. We are a specialized company made up of specialists – engineers, food technologists, bio technologists and process engineers. We have now installed close to 100 Elea PEF systems worldwide.

DIL

With around 150 member companies from the food and related fields, the German Institute of Food Technologies operates as a research institute working in the areas of product development, process development and analysis. Forming a bridge between science and practice, DIL supports its partners in the innovation process. With its various research platforms, DIL has exceptional R&D capacities that can be implemented effectively with the support from the business divisions.

HOCHSCHULE OSNABRÜCK
UNIVERSITY OF APPLIED SCIENCES

The Osnabrück University of Applied Sciences is the largest and highest performing university of applied sciences in Lower Saxony, Germany. The university is actively involved in society and sees research as an essential contribution to practically assist in solving socially relevant issues. The Osnabrück University maintain close industrial links with leading companies in several areas.

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The 5th annual PEF school 2018

Applications in Food & Biotechnology

The 5th PEF school
May 14th – 18th 2018

We would like to invite you to 5 days of Pulsed Electric Field discovery & insight at our custom built facility for the development of PEF technology in Quakenbrück, Germany.

PEF school is hosted this year by Elea, DIL and Osnabrück University of Applied Sciences and is an opportunity to learn about the latest developments in PEF applications for food and biotechnology from the people that practice it every day.

Over the course of your stay you will partake in lectures about fundamentals of PEF technology and its applications. Practical courses and excursions to our industry partners will complete the PEF school programme.

All you, students, academic and industrial researchers, interested in this innovative technology and its applications are welcome to participate at the 5th PEF school 2018 in Quakenbrück, Germany.

Further information will come soon. Please check out our website regularly. We look forward to your visit.

elea-technology.com

School programme to include:

History of PEF
Familiarity with the history of PEF helps us to understand PEF today. This lecture opens the door on to this amazing world.

Basic Principles of Electroporation
Pulsed electric energy is one of the most successful methods to open living cells in vitro. This lecture describes the factors controlling electro-permeabilization of cells. The effect of the different electrical parameters will be outlined.

PEF Equipment Design
Various applications of PEF, spanning from basic research to industry, demand for different high voltage pulse generation concepts. During this lecture, you will be able to observe the different pulse generator concepts and basic designs of treatment chambers.

Food Applications (Drying/Freeze-drying, Extraction, Freezing, Snack production)
This lecture will introduce you the effects of electroporation on different plant tissues (roots, fruits, vegetables, herbs, etc.). At the same time, it will describe the most interesting applications of PEF in the food industry such as “cold” extraction, fast freezing, improved drying, etc.

Microbial Inactivation
This topic presents you a possibility to see and understand another application of PEF as non-thermal method for inactivating microorganisms in liquid foods. Particular attention will be devoted to the proposed microbial inactivation mechanisms and its influencing parameters.

Stability of Nutrients (Shelf-life Extension)
During this lecture, you will realise that beside microbial inactivation, PEF can also retain the health-related compounds, and greatly extend the product shelf-life. Moreover, you will see new opportunities, quality and value for juices and smoothies after PEF treatment.

Industrial Applications
This theme will open you the secret door to the PEF industrial world. The recent industrial implementation as well as industrial opportunities for PEF technologies will be presented.

Non-food Applications (Biorefinery)
Here, you will see that PEF treatment can be also used in non-food processing. The initial concept of biorefinery as well as different interesting examples of PEF application in this field will be devoted.

Medical Applications
PEF can be used not only for food and non-food treatment but as well for the medical application. The lecture will present you how PEF can intensify the chemotherapy treatment and how it can help to save the humans live.

Practical Pilot Plant Workshops
The practical courses aim to provide hands-on experience on major topics relevant for PEF applications. We will offer three different laboratory workshops: Microbial inactivation; plant cell electro-disintegration; pulse generation and equipment design.

Excursion to Industrial Partners
Theoretical knowledge and hands-on experiences in pilot plant scale are just the beginning. As a round up, you will be able to see operating industrial PEF systems at our local industry partners. This will allow you to get insights into industrial dimensions.

Social Programme
After lectures, there will be time to attend dinners and get to know the cities of Osnabrück and Quakenbrück. Several local events will take place during the PEF school week that will be worth exploring.