



Newsletter No. 72

Session “Electroporation & Biomembrane Electrochemistry” at the BES 2022 Symposium

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The XXVIIth international Symposium on Bioelectrochemistry and Bioenergetics of the Bioelectrochemical Society took place in University of Antwerp, Belgium, between the 3rd and 7th April 2022. The aim of the conference was to provide a forum on all the various aspects of bioelectrochemistry, such as bio(inspired) sensors & diagnostics, microbial electrochemical technologies, electron transport system, bio-electrosynthesis, nano technologies, architectures for bio-electrochemistry, bio(photo)electrochemistry, bio-energetics, biomembrane electrochemistry and electroporation to disseminate the knowledge of bioelectrochemistry and promote exchanges on recent findings and collaborations. Furthermore, it was a symposium organised in the “old fashion” way in the lecture rooms with fruitful discussions during the coffee breaks and lunches. This year, Bioelectrochemical society gave **Giulio Milazzo** Prize for excellence in science and contribution to the expansion of the field of bioelectrochemistry to professor **Lo Gorton** (Lund University, Sweden), previous president of the society and **Luigi Galvani** Prize for a scientist who has made an important contribution to the field of bioelectrochemistry to professor **Erwin Reisner** (University of Cambridge, UK).

On Wednesday April 6th **Julie Gehl** (University of Copenhagen, Denmark) gave a Plenary lecture entitled “Treating cancer using electroporation – Understanding mechanisms and implementing clinical applications”. The field of electroporation was additionally represented with a minor delegation in a session entitled “Electroporation & biomembrane Electrochemistry”. The session on the programme was divided in two parts: on Tuesday April 5th and Thursday April 7th. Two Keynote lectures were presented by **Véronique Préat** (University of Louvain, Belgium) entitled “Electroporation for the delivery of DNA vaccine”, and **Gintaras Valincius** (Institute of biochemistry, Vilnius university, Lithuania) with talk “Electrochemical impedance spectroscopy: a tool for structure and function studies of bilayers populated with ion-conducting pores”. Two Invited lectures of **Michal Cifra** (Institute of photonics and electronics of the Czech academy of sciences, Czechia) with “Effects of intense field on structure and functions of proteins”, and **Slawomir Sek** (Department of chemistry, Warsaw university, Poland) entitled “Water structure in the sub-membrane region of a floating bilayer”.

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The oral presentations of the session covered diverse research themes ranging from fundamentals of membranes structures and functions to their potential use for clinical applications.

Within the basics, there were presentations on:

- The effect of drug lipophilicity on the interactions with model cell membranes – surface and electrochemical studies of anthracyclines and statins,
- The EcCLC antiporter embedded in the lipidic liquid crystalline films: electrochemistry and molecular dynamics simulations,
- The isolation, characterization, and redox properties of lipid rafts from Hela Cells,
- The activity of reconstructed HMG-CoA reductase in lipid rafts models

Clinical applications included:

- The tailoring algae-based vesicles for drug delivery.

Two posters were presented on symposium in the session of Electroporation & Biomembrane Electrochemistry:

- Effect of cholesterol on electroporation of planar lipid bilayer
- The electrochemical adhesion-based differentiation of algal cells.

Along the outstanding scientific content, both the social program and conference dinner assured a warm atmosphere of this event. Professor Karolien de Wael and her team succeed to make an outstanding face-to-face event. Also many thanks to Karolien for fantastic organisation of the Symposium with more than 160 participants.

The Bioelectrochemical Society is preparing the forthcoming events: 1st Workshop on Bioelectrochemistry 2023, at The University of Utah, Salt Lake City, UT, United States, June 2023, and the XXVIIIth International Symposium that will be held in Spain in 2024.

Although we, as electroporation community, have our specialised conferences and workshops, meeting people from other bioelectrochemical society can enrich us and enlighten us with other unseen perspectives. Therefore, we should consider increasing our participation on forthcoming events of the Bioelectrochemical Society.

Forthcoming events (ISEBTT Members can register at reduced fees!)

8th School on Pulsed Electric Field Applications in Food and Biotechnology

Compiègne, May 30 – June 3, 2022

<https://pefschool2022.electroporation.net>

4th World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, and Food & Environmental Technologies

Copenhagen, October 9 – 13, 2022

<https://wc2022.electroporation.net>

**15th interdisciplinary postgraduate course and international workshop
Electroporation Based Technologies and Treatments (EBTT)**

Ljubljana, November 14 – 20, 2021 (*on-site* and *on-line* event)

<http://www.ebtt.org>

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The venue – Antwerp, and
a snapshot from the
electroporation session.

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