



Österreichische Gesellschaft für Biomedizinische Technik
Austrian Society for Biomedical Engineering

Program

13th Vienna International Workshop on Functional Electrical Stimulation



Vienna, Austria, September 23rd-25th, 2019

fesworkshop.org



MEDICAL UNIVERSITY
OF VIENNA

Gad Alon

Brian Andrews

Christine Azevedo Coste

Manfred Bijak

Radu Ciupa

Mihaela Cretu

Glen Davis

Thordur Helgason

Ursula Hofstoetter

Klaus Peter Koch

Hermann Lanmüller

Johannes Martinek

Karen Minassian

Dejan Popović

Frank Rattay

Martin Reichel

Matthias Krenn

Janez Rozman

Stefan Sauer mann

Thomas Schauer

Martin Schmoll

Erika G. Spaich

Thomas Stieglitz

Paul Taylor

José Luis Vargas Luna

Michael Willand

PCC 2c

FES of Upper Extremities

Dejan Popović, Lana Popović Maneski

The workshop is structured to have a theoretical introduction and subsequent application oriented hands-on demonstrations. The workshop is planned to include continuous interactive discussion.

The workshop will focus on non-invasive options for the control of paralyzed arm-hand complex after the central nervous system lesion (brain lesion, cervical lesion of the spinal cord, and similar).

The workshop starts with theory describing the principle of the operation of functional activation of paralyzed muscles by means of electrical field and differences between the use of transcutaneous and implantable technologies. The results on the efficacy of FES augmented manipulation and grasping, with the emphasis on what were the limitations of the systems applied, will follow. The main questions that will be answered deal with methods to provide sufficient selectivity, minimize muscle fatigue, and have the control that matches the needs of users.

The practical part will be a demonstration of the strategies and limitations of the surface activation of arm muscles to support the exercise, manipulation and exercise. The presentation will include the activation of sensory pathways for possible feedback applications. An interesting example will be described where the FES technology can be used for the reduction of tremor.

The practical part will be with the new stimulators MOTIMOVE (<https://www.3-x-f.com/products.php>) and UNAFET stimulators used in clinical trials for therapy persons after stroke and spinal cord lesion at the cervical level.