

NEWS FROM IFESS

The IFESS society celebrated on 15th-16th October 2015, at the Illinois Institute of Technology, Chicago (USA), a two day workshop "FES: The Interdisciplinary Dialogue" about the history, status, and outlook for Functional Electrical Stimulation. 40 experts in the field presented 10 keynotes and a number of short presentations about the past and future of the society. Intense discussions and two working sessions analyzed and debated on the IFESS vision and mission, its current form of organizing annual conferences and other activities. At the workshop, a timeline was set to define a modern scope and significance of IFESS until mid next year to be proposed to its members at the next IFESS conference in Montpellier (France). Participation from IFESS members in the process is very welcome; please contact any of the BoD or IFESS officers. Many thanks to Prof. Philip Troyk for hosting this productive and fruitful event.

Thierry Keller, President IFESS

MEMBERS' CORNER

Any IFESS member can contribute by sending a message (150 words max) to christine.azevedo@inria.fr



Conferences announcement

🕒 **2016, June 7-10 IFESS conference, Montpellier, France.** The **20st Anniversary IFESS conference** will take place in La Grande Motte, close to Montpellier. This year a special focus on hybrid approaches of FES will be proposed. Special sessions and preconference workshops proposals are welcome. Please click on the following link to have a look on the program:

<https://ifess2016.inria.fr/>

🕒 **2016, September 7-9 Vienna International Workshop on FES, Vienna, Austria.** In 2016 the **12th Vienna International Workshop on FES** will be held in **Vienna, Austria**. This triennial workshop is organised by the Medical University of Vienna, Center for Medical Physics and Biomedical Engineering. Organisers are Melitta Pichler, Winfried Mayr, Manfred Bijak, Hermann Lanmüller, Dietmar Rafolt and Ewald Unger. Date: **7th-9th September 2016**. Web: <http://2016.fesworkshop.org/>

New publications in the field of FES

- 🕒 **Call for Papers - Special Issue.** Medical Engineering & Physics Journal. Advances in Functional Electrical Stimulation (FES) Modeling and Control. Deadline for submissions: December 31st 2015. Thomas Schauer (schauer@control.tu-berlin.de) or Christopher T. Freeman (cf@ecs.soton.ac.uk)
- 🕒 Effects of combining robot-assisted therapy with neuromuscular electrical stimulation on motor impairment, motor and daily function, and quality of life in patients with chronic stroke: a double-blinded randomized controlled trial. Lee YY, Lin KC, Cheng HJ, Wu CY, Hsieh YW, Chen CK. J Neuroeng Rehabil. 2015
- 🕒 Breathing-synchronised electrical stimulation of the abdominal muscles in patients with acute tetraplegia: A prospective proof-of-concept study. Liebscher T, Schauer T, Stephan R, Prilipp E, Niedeggen A, Ekkernkamp A, Seidl RO. J Spinal Cord Med. 2015.
- 🕒 Patterns in the collaboration of practitioners and researchers in the use of electrical stimulation to treat stroke patients: a literature review. Fujimoto S, Kon N, Takashi N, Otaka Y, Nakayama T. J Phys Ther Sci. 2015 Sep;27(9):3003-5.
- 🕒 Effects of implantable peroneal nerve stimulation on gait quality, energy expenditure, participation and user satisfaction in patients with post-stroke drop foot using an ankle-foot orthosis. Schiemanck S, Berenpas F, van Swigchem R, Munckhof PV, de Vries J, Beelen A, Nollet F, Geurts AC. Restor Neurol Neurosci. 2015.

- ⊙ Multi-Electrode Array for Transcutaneous Lumbar Posterior Root Stimulation. Krenn M, Hofstoetter US, Danner SM, Minassian K, Mayr W. *Artif Organs*. 2015 Oct;39(10):834-40.
- ⊙ Efficacy of electrical stimulation and exercise for dysphagia in patients with head and neck cancer: A randomized clinical trial. Langmore SE, McCulloch TM, Krisciunas GP, Lazarus CL, Van Daele DJ, Pauloski BR, Rybin D, Doros G. *Head Neck*. 2015 Oct 15.

New projects

⊙ **FES Therapy Device for Severely-Impaired Patients with Spinal Cord Injury**

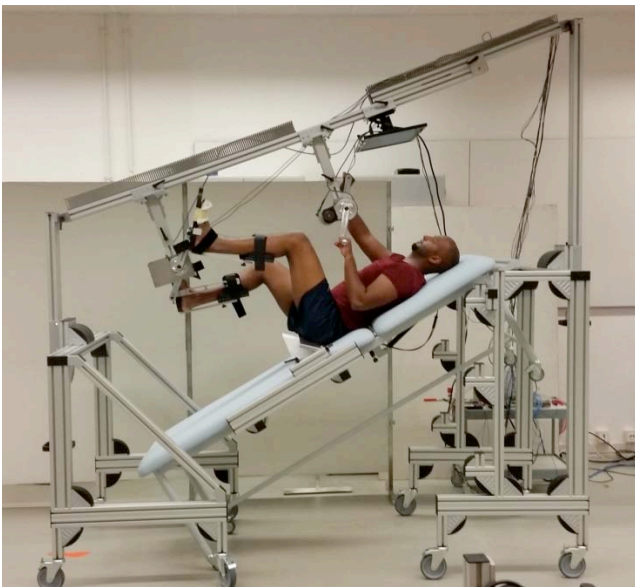
In a joint research and development project from Bern University of Applied Sciences and the Swiss Paraplegic Centre, a new fitness training device incorporating FES has emerged for people with high-level spinal cord injury; it is targeted at tetraplegic patients with partial or complete impairment of the hands/arms and legs. The system is mobile and can be moved to the patient's therapy location, be it at the bedside, on a tilt-table or on a therapy couch.

The principal technical features of the device are: compact flat-motor DC-drive technology positioned between the cranks; crank shafts with integrated torque and angle/position sensors; bio-feedback to the patient via a flat-panel screen, allowing prescribed exercise training programmes to be implemented; and seamlessly-integrated FES-activation for both the upper and lower limbs.

The drive systems are fully programmable to allow the legs and the arms to be trained individually or together, and in synchrony if required. When severe impairment is present, the drives will assist the limbs and maintain a target speed. When there is sufficient volitional or FES-generated muscle force, the drives will change operating mode to provide a resistive load and, in this situation, the target speed will still be maintained.

The first prototype of the device has now been fully technically validated. Current work is optimising the graphical interfaces for the therapist and for the patient, and the first clinical trials are being planned.

Contact: Prof. Kenneth Hunt, Institute for Rehabilitation and Performance Technology (IRPT), Bern University of Applied Sciences. Ines Bersch, Swiss Paraplegic Centre (SPZ), Nottwil.



IFESS Newsletter will be issued in **February**. Any member can send contributions before **January 15th** (150 words max). Contributions can include: conferences announcement, special issues call for papers, phd thesis defense announcement, new publications, new projects, job offers. If you have suggestions to improve IFESS-NL please let us know as well. christine.azevedo@inria.fr