PRELIMINARY PROGRAM

JUNE 5: IFESS / COST WORKSHOP DAY

09:00-18:30  Workshop 1 (Room: Comedor Real): Wearable Functional Electrical Stimulation (FES) and Non-Invasive Electrical Brain Stimulation (ESB): On the Road to Personalized Intervention in Physical Rehabilitation.
Workshop 5 (Room Salón Madera): COST WG2 meeting on STARS

09:00-13:00  Workshop 2 (Room: Salón Blanco): FES of Denervated Muscles – A Novel Therapeutic Option after Peripheral Nerve Lesion
Workshop 4 (Room: Petit Salon): Implantable Neuroprosthesis: From Bench to Bed

13:00-14:30  Lunch break

14:30-18:30  Workshop 3 (Room: Salón Blanco): Enhancing Exercise Therapy after Neurological Injury
Workshop 6 (Room: Petit Salon): COST WG 1,3 and 4 meeting on Robotic Therapies:TBD

18:30-20:30  TECNALIA Welcome Event and Accreditations

JUNE 6: IFESS / COST JOINT SPECIAL SESSION DAY

08:30-09:00  Reception
09:00-09:15  Conference Opening and Welcome Address – Dr. Ignacio Manzanares (TECNALIA, Health Division Director), Dr. Thierry Keller (Conference chair), Prof. Dejan Popovic (Scientific chair) and representative.

09:15-10:00  Keynote I (Room: Comedor Real) – Speaker: Prof. José Carmena, USA: Harnessing Neuroplasticity and Closed-Loop Decoder Adaptation in Brain-Machine Interfaces

10:00-11:30  Session ES-I: FES control and activation I (Room: Comedor Real)

O5  →  P. M. Pilarski, L. Qi, M. Ferguson-Pell et al.: “Determining the Time until Muscle Fatigue using Temporally Extended Prediction Learning”

O9  →  H. Karimi and A. Erfanian: “Adaptive Terminal Sliding Mode Control of Walker-Supported Standing in Paraplegia”


O23 → J. L. Vargas Luna, M. Krenn, J. A. Cortés Ramírez et al.: “Current versus Voltage Control Techniques for Neuromuscular Electrical Stimulation in the Anterior Thigh”

O27 → M. Same, H. Rouhani, K. Masani et al.: “Closed-loop FES control of ankle
plantarflexors and dorsiflexors using an inverted pendulum apparatus"

Session CT1-I: Combined Robotic/ES Technologies I (Room: Salón Madera)
Session RR1-I: Rehabilitation Robotics I (Room: Salón Blanco)

11:30-12:00 Coffee break

12:00-13:30

Session ES1-II: Clinical FES Applications (Room: Comedor Real)


CT1-II: Combined Robotic/ES Technologies II (Room: Salón Madera)
RR1-II: Rehabilitation Robotics II (Room: Salón Blanco)

13:30-14:45 Lunch at the Hotel Costa Vasca Restaurant.

14:45-16:15

Session ES1-III: FES control and activation II (Room: Comedor Real)


O64 → F. Resquin, F. Brunetti and José L. Pons: “A system for spasm detection during robotic therapies: preliminary results”
O30  A. Cologni, Th. Seel, M. Madaschi, et al.: “Automatic Adjustment of Electromyography-Based FES Control”

O31  J. Szecsi and B. Kreuzpointner: “Muscle stimulation sequences for different forms of mechanically constrained locomotion”

CT1-II: Combinational Robotic Therapies (Room: Salón Madera)

RR1-III: Rehabilitation Robotic Assessment (Room: Salón Blanco)

16:15-16:45 Coffee break

16:45-17:45 Keynote II (Room: Comedor Real) – Speaker: Prof. Marco Molinari, Italy: Advanced Technology and Neurorehabilitation. What Patients and Clinicians Want Versus What Neuroengineering Research Provides

18:00-22:00 Basque Poster Evening

JUNE 7: IFESS CONFERENCE DAY

09:00-09:45 Keynote III (Room: Comedor Real) – Speaker: Prof. Robert F. Kirsch, USA: Reanimating the Limbs: FES Research in Cleveland - Accomplishments and Plans

09:45-11:15 Session ES2-I: Upper Extremity FES (Room: Comedor Real)


O29  T. Exell, Ch. Freeman, K. Meadmore, et al.: “Stimulation of Hand Postures Using an Electrode Array and Iterative Learning Control”


O44  M. Štrobac, N. Malešević, R. Čobeljić et al.: “Feedback control of the forearm movement of tetraplegic patient based on Microsoft Kinect and multi-pad electrodes”

O46  L. Popović Maneski, M. Janković, T. Jevtić, et al.: “Functional electrical stimulation (FES) for augmenting of the reaching and grasping”

11:15-11:45 Coffee break

11:45-13:15 Session ES2-II: Vodovnik Award Short Presentations (Room: Comedor Real)

13:15-14:30 Lunch at the Miramar Palace

14:30-16:00 Session ES2-III: Physical training, cycling, rowing, fitness (Room: Comedor Real)
O2  B. Goodarzi and M.C. Kumar: “Effect of Electro Muscle Stimulation and Resistance Training on Body Weight and WHR in Over Weight People”

O4  O. Giggins, H. Butler, L. Crowe et al.: “An Investigation into the Acute Effects of Neuromuscular Electrical Stimulation Exercise on Oxygen Consumption in Type 2 Diabetes.”


O55  T. Watanabe, T. Murakami and Y. Handa: “A Feasibility Study of FES Cycling with Cycling Wheelchair “Profhand”


16:00-19:30 Free activity in San Sebastian and surroundings

20:00-23:00 Conference Dinner and Celebration of Vodovnik Award at La Perla Restaurant

JUNE 8: IFESS CONFERENCE DAY

09:00-10:00 Keynote IV (Room: Comedor Real) – Speaker: Prof. Herman van der Kooij, The Netherlands: Reanimating the Limbs: Rehabilitation Robotics and Novel Assessment Methods for the Lower Extremities

10:00-11:15 Session ES3-I: Lower Extremities (Room: Comedor Real)


O16  A. Roshani and A. Erfanian: “A Fuzzy Logic Controller with Rule-Based Co-Activation Supervisor for Control of Ankle Movement Using Multielectrode Intraspinal Microstimulation”


O60  T. Matsunaga, D. Kudo, K. Saito, et al.: “Functional Electrical Stimulation (FES) for the correction of hemiplegic drop foot”

11:15-11:45 Coffee Break

11:45-13:15 Session ES3-II: Neuromodulation, sensory stimulation, afferent feedback (Room: Comedor Real)

O20  M. A. Richard, O. Bello, E. G. Spaich et al.: “Modulation of the nociceptive withdrawal reflex elicited after an auditory cue during the gait initiation process”

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O41 → P. Aqueveque, R. Lopez and E. Pino: “Electrical Stimulation Device to Produce Inhibitory Action in Subjects with Nocturnal Bruxism: Preliminary Results”


O48 → N. Miljkovic, O. Đorđević, G. Bijelić, et al.: “EMG and ultrasound imaging measurements of low back muscles”

O62 → L. Popa and P. Taylor: “An investigation into the effect of FES on bradykinesia in Parkinson’s Disease”

13:15-14:30 Lunch at the Miramar Palace

14:30-15:15 IFESS General Assembly

15:15-16:00 Keynote V (Room: Comedor Real) – Speaker: Prof. Philip Troyk, USA, Engineering Neural Prostheses: Meeting the Challenges of FES

16:00-16:30 Coffee Break

16:30-18:00 Session ES3-III: Neural Interfaces, Sensors, Implantable FES Technology (Room: Comedor Real)

O3 → M. Rohm, R. Rupp, M. Schneiders, et al.: “Hybrid Brain-Computer Interfaces for control of neuroprosthetic systems for restoration of upper limb functions in high spinal cord injured individuals”


O32 → M. Abdallah, F. Soulier, S. Bernard et al.: “Low-noise and Low-power Front-end for True-tripolar ENG Amplifier”


O43 → M. Han, D. McCreery and Y. Smirnova: “In-Vivo Charge Injection Capacity of Implanted Microelectrodes In a Hybrid Array”


18:15 End of the conference
# POSTERS

**Miramar Palace, JUNE 8, 18:00 – 22:00:**

| P7  | I. Tarkka | nTMS equivalence with Upper Limb Functional Tests in Stroke Patients |
| P8  | M. Ibtoye and N. A. Hamzaid | Myoelectric Signal and FES-evoked Muscle Contraction: Muscle Force and Fatigue Assessments |
| P13 | D. Zhang | Exploring Mechanism of Tremor based on Experiments on Real Subjects using FES |
| P21 | O. Bello, M. A. Richard, E. G. Spaich et al. | Effects of painful stimulation on spatiotemporal characteristics of gait initiation |
| P26 | I. D. Constantin, M. Poboroniuc and O. Rupert | New Method and Perspectives in FES&BCI Based Rehabilitation |
| P33 | E. Menzies, C. Minogue and M. Lowery | Transcutaneous Functional Electrical Stimulation of the Pelvic Floor Muscles: a Simulation Study |
| P35 | M. Kostic and M. Popovic | The Modified Drawing Test |
| P42 | J. Judy and T. Wheeler | Reliable Neural Interfaces for Life-Long Intuitive Control of Prosthetic Devices |
| P53 | M. Watanabe, T. Matsunaga, Y. Okudera, et al. | Comparison of the Effects of Two Different High Frequency Repetitive Transcranial Magnetic Stimulation on the upper limb function in Healthy subjects |
| P54 | N. Shimada, T. Matsunaga, Y. Shibata, et al. | Improved Function of the upper extremity in Persons with Cervical Spine Disorders by Therapeutic Electrical Stimulation |
| P57 | E. Hortal, A. Ubeda, E. Iñáez et al. | Selection of the best classifier for differentiating mental tasks in a brain-machine interface |
| P63 | P. Aqueveque, E. Pino and C. Wandersleben | A Low Cost FES Cycling System Using Fuzzy Logic Control |