

PHYSICS SEMINAR

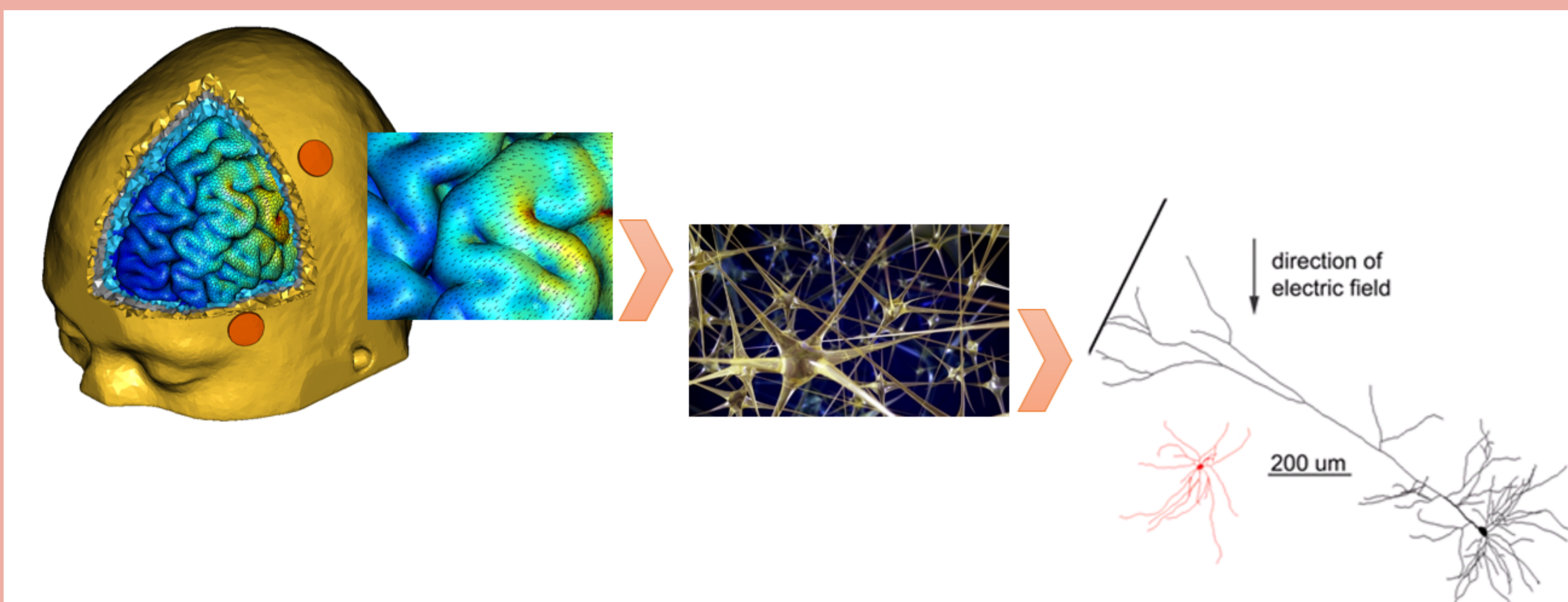
Wednesday, 19th March, 2025

14 – 15 h

Room C1.4.14

By: Dra. Sofia Fernandes (FCUL-IBEB)

“Computational Approaches in Non-Invasive Brain and Spinal Cord Stimulation”



Abstract: Non-invasive brain and spinal stimulation (NIBSS) is gaining interest in the clinical community due to a wide range of therapeutic applications for neural function repair/maintenance (e.g. stroke, spinal cord injury, Parkinson’s Disease, depression). NIBSS can provide an alternative solution when surgically-implanted stimulators or pharmacological therapy are not compatible nor viable. Biophysical constructs based on computational numerical methods provide a well-grounded framework to determine the most effective protocols designed according to each patient’s needs. This seminar will update on current research developed at IBEB towards a computational model-guided application of NIBSS for clinically relevant outcomes.

Short bio: “Sofia Fernandes is assistant professor at the Department of Physics of FCUL and a researcher at Instituto de Biofísica e Engenharia Biomédica (IBEB). She has a PhD in Neurosciences, completed in 2019 (FMUL). Her research is dedicated to study the effects of electromagnetic stimulation in biological tissues for therapeutic applications, using realistic computational models of the human brain and spinal cord, field of research that she leads at IBEB since September 2022. Her academic background combines clinical and exact sciences, with BScs. in Physiotherapy and Physics, reflecting a multidisciplinary research methodology. Sofia is currently the portuguese PI within the european consortium "DC4MND - Multidimensional mechanistic investigations of trans-spinal direct current stimulation in motor neuron disease", awarded by the JPND 2022 call. She also has collaborations with several institutions worldwide in the field of neurostimulation and modelling.”