**Titolo (provvisorio):** Characterization of High-frequency oscillations from scalp EEG in epileptic pediatric patients

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**Motivazione e campo di applicazione**

High-frequency oscillations has been related the seizure onset zone by means of invasive intracerebral recordings. The presence of such electrophysiological patterns during interictal recordings can be characterized in terms of spatial distribution and onset zone to fully exploit non-invasive recordings in the differential diagnose of epilepsy in young age.

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**Obiettivi generali e principali attività**

The general objectives and activities are:

1. the design and setup of algorithms to detect high-frequency oscillations recorded from clinical EEG
2. Characterize the spatial distributions and possibly to define the cortical origin

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**Obiettivi di apprendimento (strumenti tecnici e analitici, metodologie sperimentali)**

During the thesis mathematical (spatial filtering, ICA/PCA-based methods, connectivity, frequency based analyses and source reconstruction methods) as well as software tools (EEGLab, Brainstorm, Fieldtrip) used in EEG analyses will be investigated. The successful candidate will have the opportunity to take first chance to interact directly with medical doctors that are involved in the study of epilepsy and to face with real methodological problems connected to classical biomedical scenarios

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**Luogo/i in cui si svolgerà il lavoro:** DIBRIS

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**Informazioni aggiuntive**

**Abilità e capacità richieste:** Dedication, Initiative, self-sufficiency, and previous experience with Matlab programming language

**Numero massimo di studenti:** 2

**Supporto finanziario/borse di studio:** Nessuno