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► **To cite this version:**

Sébastien Rimbart, Fabien Lotte. Relationship between ERD modulations, MI-based BCI performance and users' traits. CORTICO 2022 : Invasive and non invasive Brain-Computer Interfaces - A handshake over the cliff, Mar 2022, Autrans, France. hal-03651863

HAL Id: hal-03651863

<https://inria.hal.science/hal-03651863v1>

Submitted on 9 Jan 2023

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Relationship between ERD modulations, MI-based BCI performance and users' traits

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Abstract

Improving user performances is one of the major issues for Motor Imagery (MI) - based BCI control. MI-BCIs exploit the modulation of sensorimotor rhythms (SMR) over the motor and sensorimotor cortices to discriminate several mental states and enable user interaction. Such modulations are known as Event-Related Desynchronization (ERD) and Synchronization (ERS), coming from the mu (7-13 Hz) and beta (15-30 Hz) frequency bands. This kind of BCI opens up promising fields, particularly to control assistive technologies, for sport training or even for post-stroke motor rehabilitation. However, MI-BCIs remain barely used outside laboratories, notably due to their lack of robustness and usability (15 to 30

Keywords: Event, related desynchronization, Motor imagery, electroencephalography, users' traits

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