

Title: **Neurology and Cognitive Neuroscience**

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Recent technological advancements have made it possible to combine brain stimulation through transcranial magnetic stimulation (TMS) with simultaneous electroencephalographic (EEG) imaging. Through the investigation of TMS-evoked potentials (TEPs), the TMS-EEG integration gives real-time information on cortical reactivity and connectivity, as well as how functional activity ties to behavior through the study of TMS-induced modulations thereof. It demonstrates how these effects change over time as a result of neuronal state, differentiating between people and patient groups while also changing fast during task execution. This review examines the vast variety of potential TMS-EEG applications, as well as what new knowledge may be gathered using this technology on the dynamics of brain functions, hierarchical organization, and cortical connections, as well as TMS activity in general. A breakthrough in our knowledge of these challenges is long overdue, and it promises to have a significant influence on a variety of clinical and fundamental neuroscience fields.

It's vital to note that these two strategies are significantly more complicated. TMS can be used in a variety of ways (e.g., as single or multiple pulses, at high or low frequency), and the outcome of TMS is dependent on a number of technical variables, including the frequency and intensity of stimulation, as well as the timing of TMS application, i.e., before, during, or after the task. Similarly, EEG data may be evaluated using a variety of methods, yielding results that reflect several sides of the same coin, while the link between them is yet unknown.

Biography

At the University of Pavia in Italy, I received my bachelor's degree in general psychology and am nearly completed with my master's degree in psychology, neuroscience, and human science. I had two years of experience working as a social worker and therapist, and I had worked in an addiction clinic as a social worker and psychotherapist. During my bachelor's degree, I worked with a psychological organization on a documentary on addiction.

I studied cognitive psychology and neuroscience at Pavia University.

I am now working on EEG, TDCS, and advanced research methodologies, and I have clinical and neurological understanding.

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Session name/ number:
Category: (Oral presentation)