Dr. Guillermo Horga’s most recent project uses functional magnetic resonance imaging (fMRI) to understand the neural mechanisms of transcranial Direct Current Stimulation (tDCS), a non-invasive technique for brain stimulation. Recent studies show that tDCS can be highly effective for treating several symptoms of schizophrenia, including auditory verbal hallucinations (i.e., the perception of voices in the absence of a corresponding stimulus), even when other treatments fail. However, the mechanism of action of tDCS in schizophrenia is not understood. His research aims to understand the brain mechanisms by which tDCS leads to symptom improvements, particularly the reduction of hallucinations and negative symptoms (such as lack of motivation), symptoms which in many cases are elusive to conventional treatments and pose great socio-economic burden to patients, their families, and society at large. This work also aims to use brain measures to identify those patients who are more likely to respond to this stimulation treatment, which will aid clinicians in personalizing treatment for individuals with schizophrenia. This research may thus permit a better understanding of the brain abnormalities that produce psychotic symptoms in schizophrenia and how these abnormalities may be targeted by tDCS.