Negative symptoms of schizophrenia, makes the most significant contribution to illness burden yet remain poorly understood and lack effective treatments. These symptoms are closely linked to impairments in emotional neurocognitive processes, with preliminary evidence suggesting that interoception—an essential mechanism in emotional experience—is disrupted in schizophrenia and associated with symptom severity.

Functional neuroimaging using **naturalistic stimuli,** such as movie viewing, offers enhanced ecological validity and reliability compared to resting-state paradigms or controlled tasks. Movie stimuli elicit synchronised brain dynamics across individuals, reducing variance and exposing individual differences in emotional processing. Prior studies have demonstrated associations between altered neural synchrony during movie viewing and increased symptom severity in both depression and schizophrenia.

The **hidden Markov model (HMM)** provides a powerful method to identify temporally evolving brain states from fMRI data. Previous work has shown altered HMM-derived states in PTSD and schizophrenia, with evidence for reduced brain dynamism and increased time in inactive states.

In this novel study we apply HMM analysis to fMRI data acquired from 40 individuals with psychosis and 40 controls during viewing of an emotional movie clip. We are currently analysing this data, preliminary results will be presentable before November. We hypothesise that the experimental group will show prolonged occupancy of ambiguous states and reduced engagement in high-valence states, correlating with symptom severity. We hypothesise that there will be less variability in heart rate during segments of increased emotional intensity in the experimental group. This approach may provide new insights into the neurobiological mechanisms underlying negative symptoms and guide development of novel therapeutic strategies.