

**NEURAL CORRELATES OF SOURCE MEMORY IN HUMANS ARE
REVEALED BY A HIGH-DENSITY ERPS ARRAY.**

Scanlon, P¹, Moore, JL¹, Murphy, J¹, Commins, S¹, Dockree, PM², Jacoby, LL³ & Roche, RAP^{1,2}

¹ Dept. of Psychology, National University of Ireland, Maynooth, Co. Kildare, Ireland.

² School of Psychology & Trinity College Institute of Neuroscience, University of Dublin, Trinity College, Dublin 2, Ireland.

³ Dept. of Psychology, Washington University, St.Louis, MO, USA.

Failures of source memory, which is the ability to recall the specific context in which events took place, have been associated with cognitive decline in the elderly. Source memory deficits appear to be more indicative of age-related memory impairment than disruption of item memory. An Opposition Procedure developed by Jacoby and colleagues (Jennings & Jacoby, 1997) tests this source memory capacity by drawing on repetition errors in a word recall task in which novel words are presented repeatedly at 3 differing lags (0, 4 and 16 trials). This task is sensitive to source memory dysfunction, with older adults being found to produce significantly more errors in repetition than healthy younger adults. In this study we recorded 128-channel EEG from normal healthy participants (N=18) (age 18-24) while they executed the Opposition Task. The behavioural results showed that accuracy decreased significantly ($p < 0.05$) for lag 4 and 16 trials compared to lag 0 trials, with an associated significant increase in reaction times ($p < 0.05$) for the longer lag conditions, replicating the results found by Jennings & Jacoby (1997). A distinct pattern of ERP componentry associated with the task was observed, particularly a P2-N2-P3 complex, with greater P2 and P3 amplitude for lag 4 and 16 trials when compared to lag 0 trials, mirroring the behavioural results. In addition, source analysis revealed some cortical generators in key memory structures associated with the task. Results are discussed in relation to prominent models of memory retrieval.