# Neurally Enhanced Control over Social Avoidance during Public Speaking Exposure in Social Anxiety

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**Abstract**

Socially anxious individuals often engage in subtle avoidance behaviors (SABs) to mitigate their distress during feared social situations, such as avoiding eye-contact during a public speech. However, by preventing direct confrontation with their fears, SABs greatly hinder the efficacy of exposure therapy, the first-line treatment for social anxiety. Here, we test whether neural stimulation of the brain circuits controlling avoidance behavior can augment the efficacy of exposure therapy. This intervention relies on evidence that dual-site transcranial alternating-current simulation (tACS) of theta-gamma phase-amplitude couplings between frontal regions can improve control over social avoidance tendencies. Here, we use the same tACS protocol (active, or sham) on socially anxious individuals undergoing a standardized exposure to public speaking. Additionally, we implement quantitative, multimodal estimates of SABs using motion-tracking, eye-tracking, and prosodic analyses of participants' public speeches. We expect quantifiable reductions in multimodal measures of SABs during active-vs-sham tACS, ultimately enhancing exposure therapy's efficacy.



In L. K. Samuelson, S. L. Frank, M. Toneva, A. Mackey, & E. Hazeltine (Eds.), *Proceedings of the 46th Annual Conference of the Cognitive Science Society.* 