

Abstract Submitted
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A two-state quantum level and power analysis of event-related scalp potential data relevant to the detection of deception and to the discrimination of correlates of high-order cognitive functioning. MICHAEL SCHILLACI, University of South Carolina — We propose a novel analysis approach for scalp potential data within a Quantum Mechanical formalism for voltage measures obtained during truthful and deceptive responses to questions regarding autobiographical information; our results not only provide independent verification for recent studies showing that surface skin temperature may improve the accuracy of traditional polygraph, but also provides an argument for the appropriateness and efficacy of the quantum-level analysis offered. Regional attenuation and cognitive activity levels for areas of neurophysiological significance are assessed and show that deceptive response-states emit between 8% and 10% less power. A time course analysis of the cognitive activity over posterior and anterior regions of the brain supports this finding suggesting that neocortical interactions reflecting differing workload demands during executive and semantic processes take longer for the case of deception.

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