

# **PHYSICS AND ASTRONOMY SEMINAR SPRING 2009**

**A NOVEL COMMUNICATION METHOD:  
THE P300 BRAIN-COMPUTER INTERFACE**

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In the past few years brain-computer interface (BCI) technology has progressed to a point where severely disabled individuals can benefit from this exciting new technology. People who are severely disabled by amyotrophic lateral sclerosis (ALS) are now using BCIs in their homes, on a daily basis, and for important communication purposes. At present, five people who are severely disabled by ALS are using the Wadsworth Home BCI. The first user has had the system since February of 2006. He is a molecular neuroscientist who uses the system to run his NIH funded laboratory and he uses the system for up to eight hours per day. All of the users have reported an increased quality of life and the caregivers have reported that the technology is not too onerous to operate. This lecture will focus on several important aspects involved in moving BCI technology from the laboratory to the home: First, the P300 event-related potential will be introduced and how it serves as the basis for a practical BCI will be explained. Second, several studies examining critical stimulus characteristics will be discussed. Third, the home BCI system will be introduced and home-use data will be presented. Finally, long-term expectations and future directions will be examined.

***Monday, January 26, 2009, 4:00 pm***  
***Brown Hall 261***

***Refreshments served at 3:45 pm***