



## FENS Forum 2010 - Amsterdam

- Posters: to be on display from 8:00 to 13:15 in the morning and from 13:30 to 18:45 in the afternoon. Poster sessions run from 09:30 to 13:15 in the morning and from 13:30 to 17:30 in the afternoon. A one hour time block is dedicated to discussion with the authors (authors should be in attendance at their posters as from the time indicated.)
- For other sessions, time indicates the beginning and end of the sessions.

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Poster board D8 - Tue 06/07/2010, 11:15 - Hall 1

Session 139 - Vision 3

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**Title** Lateralization of alpha oscillations in grapheme-color synaesthetes suggests altered color processing

**Text** In grapheme-color synaesthesia, the percept of a particular grapheme causes additional experiences of color. To investigate this interesting integration of modalities, brain activity was recorded of 7 synaesthetes and matched controls using magnetoencephalography. Subjects had to report the color change of one of two letters presented left and right of a fixation cross. One of the letters was neutral (eliciting no color percept), the other one could either be neutral, colored or elicit synaesthesia (in synaesthetes). Additionally, the side of color change was validly or invalidly cued. As expected, in both subject groups 10 Hz alpha oscillations decreased contralateral to the attended side leading to an alpha lateralization. Additionally, controls as well as synaesthetes showed a stronger alpha reduction if the attended letter was colored indicating that color increased the attentional allocation. Interestingly, synaesthetes show the same effect of alpha decrease for synaesthetic color. While color on the attended side reduced alpha power in controls and synaesthetes, color on the unattended side only reduced alpha power in synaesthetes. Indeed, also psychophysical measures indicated changed processing in synaesthetes of unattended color stimuli. Only controls profited from the cue when attending the noncolor stimulus. Synaesthetes, however, performed worse if the noncolor stimulus was validly compared to invalidly cued. This means that synaesthetes performed better on the colored stimulus despite an invalid attentional cue. Changed alpha power lateralization and psychophysics due to unattended colorful input indicate that synaesthetes are more affected by color than controls. This might be due to increased attentional demand.

**Theme** D - Sensory and motor systems  
Vision - Visual cognition