

98. Poster Session: Human behavioural neurobiology

98.02 INTEGRATION OF COLOUR INFORMATION ACROSS THE VISUAL FIELD

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In order to achieve colour constancy, our visual system has to infer the spectral composition of the illuminant from the distribution of colours in the visual field. To investigate this integration of colour information, colour appearance changes in different spatiochromatic contexts were measured quantitatively with a forced-choice psychophysical method. Stimuli were 2° test patches in a context of several colour patches on a homogeneous background. Subjects compared the test patches across successive presentations, where colour changes were introduced that were either consistent with a change in illumination, or with a colour change in the context fields. It was found that in addition to the effect of local border contrast, there is a long-range component of induction from the spatially separate colours. This component, which is effective within a few hundreds of milliseconds, affects colour appearance changes by up to 12 percent. It is largely independent of the spatial separation of the colours, up to 10°, and of the relative area they occupy. Its modulatory characteristic is such that local changes in the chromatic context do not affect colour appearance, but the same changes have a measurable effect when occurring with a change in adaptation state. This mechanism can be interpreted as a way to adjust efficiently to changing illumination, while preserving robustness against local changes in chromatic context.