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**Spatial attention is eccentricity dependent: Where something is, matters!**

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**Abstract**

The human visual field is characterized by an interesting paradox. On the one hand, homogeneity is suggested as the subjective brightness for supra-threshold stimuli remains constant throughout the visual field. On the other hand, inhomogeneity is indicated by various observations such as the different sensitivities as measured by light-difference thresholds, different saccadic programing modes and distinct visual pathways for the perifoveal and peripheral visual field. In recent years, new observations have been made using spatial cueing paradigms, pointing towards a functional subdivision of attentional control in the visual field. In this talk, I will focus on the converging evidence of our recent observations based on both behavioral and imaging measurements. The initial discovery of an eccentricity effect of spatial attention comes from an inhibition of return (IOR) study, which demonstrates a stronger inhibitory processing at the periphery relative to the perifoveal visual field. This eccentricity effect is confirmed later by various spatial cueing paradigms and is shown to be independent of cortical magnification factor. Further studies using ERP, fMRI and MEG technologies have revealed different neural mechanisms of spatial attention in the two regions of the visual field. Moreover, by using the circadian rhythm as a tool, the two types of spatial attention have been successfully disentangled, i.e., one peaks in the morning and the other peaks in the evening. Thus, our recent studies have provided strong evidence showing that spatial attention in the visual field is not homogeneous, but eccentricity dependent ---- the perifoveal and peripheral regions underlie a functional dissociation of attentional control.