

# Stanilas DEHAENE

**Jeudi 16 Juin 2005**  
Conférence Générale

16h30 – 17h15

*From subliminal to conscious processing: a non-linear dynamical phase transition ?*

Why is there a threshold for conscious perception of visual stimuli? What brain activity can occur “subliminally”, below this threshold, and how does it differ once the threshold is crossed? I shall review recent evidence from masked priming experiments, which suggests that many stages of word processing can proceed subliminally, in the absence of consciousness of having seen a word. In particular, case-invariant letter recognition and cross-script lexical access can occur without consciousness. Those results raise the issue of where in the brain can we see the first evidence of conscious processing, and when the divergence between conscious and unconscious words first occurs. I shall describe recent evidence from an attentional blink paradigm, which indicates that an all-or-none dynamic transition occurs selectively during conscious perception, starting at about 200-250 ms after stimulus onset, and leading to subsequent cingulate and parieto-frontal activation. The results are consistent with theory and recent simulations of a distributed “conscious neuronal workspace” established by neurons with long-distance connections, and which leads to a non-linear threshold for sustained recurrent neural activity.

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