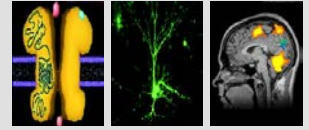


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**CONFERENCE****EXTINCTION LEARNING:  
THE NEURAL, BEHAVIOURAL, ONTOGENETIC,  
EDUCATIONAL, AND CLINICAL MECHANISMS****April 24 - 25, 2018** Veranstaltungszentrum, Ruhr University Bochum

Tuesday

April 24, 13:40 – 16:20

**Session 2****Extinction & Associative Learning – Foundations****JAMILA ANDOH**

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**Brain learning circuitry in chronic pain**

Current research suggests that chronic pain is related to changes in emotional learning and memory processes, with a particular role for respondent and operant learning processes. Learned fear of movement and pain and associated respondent learning processes are viewed as a major factor in the development and maintenance of chronic pain states.

Key brain areas involved in these processes include prefrontal cortex, amygdala, hippocampus and nucleus accumbens (NAc). Particularly, changes in the prefrontal cortex in terms of structure and function, as well as its functional connectivity with the NAc have been associated with pain chronicity. These findings suggest that chronic pain is related to structural reorganization and functional plasticity in emotional circuits, possibly linked to pain behaviors as a result of conditioned learning.

Cortical plasticity related to chronic pain can be modified using behavioural interventions to “relearn” or reform new memories. In addition, fMRI neurofeedback or non-invasive brain stimulation methods are believed to reverse maladaptive plasticity, and could offer new perspective for therapy.

