

**Project title:** The neuropsychology of dissociative symptoms

**Project leader:** Harald Merckelbach & Tom Smeets

**Function:** Professor; Associate Professor

**Collaborators:** Chui-De-Chiu, Dep. of Psychology, The Chinese University of Hong Kong

**Proposal (250 words):**

**Introduction:** Dissociative symptoms refer to symptoms that signal disruptions in cognitive processing (e.g., amnesia, depersonalization, identity confusion) and they occur in the normal population, but also in a more radical form in a wide variety of psychiatric disorders, among which panic disorder, borderline personality disorder, and obsessive compulsive disorder. Their occurrence is a severity marker, i.e., they predict poor outcome and treatment resistance. Over the past years, the neuropsychology of dissociative symptoms has become much clearer. Basically, it involves switches between a state of overmodulation (hyperactivity in the prefrontal areas and hypoactivity in the limbic areas) and a state of undermodulation (hypoactivity in the prefrontal areas and limbic hyperactivity). In this project, we want to explore the origins and symptomatological consequences of this switching.

**Hypothesis and Objectives:** We will examine:

whether acute stress and/or sleep deprivation induces switches from over- to undermodulation stages and vice versa; whether tracking of autonomic arousal and cortisol levels reflects these switches; whether symptomatology is differentially related to stages (e.g., flashbacks during undermodulation and derealisation during overmodulation); whether cognitive profiles are differentially related to stages (e.g., hyperassociativity during undermodulation and amnesia during overmodulation); whether interventions aimed at sleep hygiene and stress management may reduce switching.

**Setting and Methods:** These key questions will be addressed with experiments involving normal and clinical samples using autonomous psychophysiology, EEG, and cortisol measurements.

**Impact:** This research will help to inform clinicians about a more effective treatment of dissociative symptoms.

**Requirements candidate:** Highly motivated student with good English communication skills and proactive and resolute attitude.

**Keywords:** Dissociative symptoms, stress physiology, sleep, autonomous nervous system, cortisol

**Top 5 selected publications:**

1. Smeets, T., Cornelisse, S., Quaedflieg, C.W.E.M., Meyer, Th, Jellicic, M. & Merckelbach, H. (2012). Introducing the Maastricht Acute Stress Test (MAST): A quick and non-invasive approach to elicit robust autonomic and glucocorticoid responses. *Psychoneuroendocrinology*, 37, 1998-2008.
2. Lynn, S.J., Lilienfeld, S.O., Merckelbach, H., Giesbrecht, T. & van der Kloet, D. (2012). Dissociation and dissociative disorders: Challenging conventional wisdom. *Current Directions in Psychological Science*, 21, 48-53.
3. Giesbrecht, T., Merckelbach, H., Van Oorsouw, K. & Simeon, D. (2010). Skin conductance and memory fragmentation after exposure to an emotional film clip in de depersonalisation disorder. *Psychiatry Research*, 177, 342-349.
4. Van der Kloet, D., Merckelbach, H., Giesbrecht, T. & Lynn, S.J. (2012). Fragmented sleep, fragmented mind: The role of sleep in dissociative symptoms. *Perspectives on Psychological Science*, 7, 159-175.
5. Quaedflieg, C.W.E.M., Van de Ven, V., Meyer, T., Siep, N., Merckelbach, H., & Smeets, T. (2015). Temporal dynamics of stress-induced alternations of intrinsic amygdala connectivity and neuroendocrine levels. *PlosONE*, 10(5): e0124141.