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Faculty of Psychology

Colloquium lecture by Prof. Gianluca Esposito

From Mother-Child Bonds to Social Synchrony: A Journey into Interactive Brains

In this presentation, we embark on a journey into the captivating realm of social interactions, peering not only into the vital mother-infant bonding but also a diverse array of dyads, spanning from friendships and encounters with strangers to those immersed in psychodrama. Our aim is to unveil the shared and distinctive brain mechanisms underpinning these multifaceted social connections.

To achieve this, we employ advanced techniques, including genetic engineering and neuroimaging hyperscanning. Through our research, we delve into the following core aspects:

Instinctive Caregiver Responses: We explore the innate responsiveness of caregivers to their dependents. Our findings illuminate the automatic nature of this response, shedding light on the neural processes that drive it.

Infant-Caregiver Interactions: We investigate the natural reactions of infants to their caregivers. By examining the intricate dance of brain activity between infants and caregivers, we uncover the subtleties of this primal connection.

Quantifying Brain Synchrony: Using cutting-edge tools, we quantify and assess brain synchrony between individuals engaged in various social interactions. This approach allows us to discern the patterns and intricacies of neural alignment during these exchanges.

Our discoveries not only reveal the existence of common neural mechanisms in early caregiver-infant interactions across mammalian species but also highlight the distinct behaviors associated with these connections. Notably, we find that higher levels of parenting stress are linked to reduced mother-child brain synchrony, particularly in the medial left prefrontal cortex. Additionally, maternal anxious attachment correlates with diminished synchrony in regions crucial for mental state inference and social cognition, emphasizing the profound influence of psychological factors on caregiver-infant bond formation.

Moving beyond parent-child interactions, our research extends to encompass the intricate dynamics

among friends, strangers, and individuals engaged in psychodrama, offering a holistic understanding of the neural underpinnings of social connections. Our approach underscores the interplay between individual psychological processes and the broader environmental and social contexts in which these interactions unfold.

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**This lecture takes place at Liebiggasse 5, 1010 Vienna,
Lecture Hall G 2nd floor and will be streamed.**

Thursday, December 7, 2023; 3pm