

## The origins of individuality – being unique starts with a uniquely developed brain

Why are we all different, and where does this variability come from? These are the core questions guiding my lab's work. We answer these questions by using the fruit fly *Drosophila melanogaster* and its vast genetic toolset. Over the past decade, several behavioral studies have demonstrated that idiosyncratic behavioral traits remain stable over long time periods. The stability of individually variable characteristics over time is often referred to as an animal's individuality. Our work demonstrates that individuality depends not only on nature or nurture, therefore genes and the environment, but also stochastic processes or chance in brain development play an essential role in creating variability in the brain and behavior. My talk will discuss our recent results on how stochastic processes create variability in insect brains and the consequences of variable brain wiring for individuality. In the second part of my talk, I will speak about the complex interplay of variable brains with the environment, and I will extend these discussions towards variability in parthenogenetic (clonal) animals.