**Cornelia Bargmann – CNeuro Lecture 2021**

*Organizing Behavior across Timescales*

Genes, neurons, and circuits encode information, interpret it based on context and motivational states, and use that combined input to drive flexible behaviors.  Understanding how these processes propagate across temporal and spatial scales is daunting in the complex human brain, but more straightforward in the simple brain of the nematode  *C. elegans.* Our studies of *C. elegans* chemosensory and foraging behaviors have provided insights into three levels of behavioral regulation: the gating of information flow by circuit state over seconds, the extrasynaptic regulation of circuits by neuropeptides and neuromodulators over minutes, and innate programs that modify behavior across development.

**Special Lecture Abstract**