

Topological explorations in neuroscience

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The brain of each and every one of us is composed of hundreds of billions of neurons – often called nerve cells – connected by hundreds of trillions of synapses, which transmit electrical signals from one neuron to another. In reaction to stimulus, waves of electrical activity traverse the network of neurons, processing the incoming information. Tools provided by the field of mathematics called algebraic topology enable us to detect and describe the rich structure hidden in this dynamic tapestry.

During this talk, I will guide you on a mathematical mystery tour of what topology has revealed about how the brain processes information.