How multitasking neurons make context-dependent decisions

After studying biological data and a computer model, Stanford scientists believe that neurons in the prefrontal cortex receive both color and motion data, and screen out the irrelevant sensory input to make decisions. This confounds the conventional thinking that such decisions involved one group of neurons that filtered out irrelevant signals and a second group of neurons that made a decision based on the relevant data. This graphic shows how one group of neurons in the prefrontal cortex "multitask" to make decisions. Color and motion signals converge in this area. But when experimenters asked a question involving color, a selection vector directed color signals to a line attractor. This line attractor represents the neurons 'concentrating' on the relevant signal and disregarding irrelevant motion data. A split second later these same multitasking neurons made the color-based decision.