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*** Withdrawn *** Soma-dendrite interaction enhances noisy signal encoding

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Dendrites are often excitable structures involved in the signal processing of almost all neurons. We find that when an active dendrite has a greater intrinsic variability and a longer refractory period than the soma, it will determine spike times for weak inputs but be entrained by somatic spikes for strong inputs. This produces an input-dependent gating of dendritic noise. As a result, populations of dendrite-soma systems improve transmission of sub- and suprathreshold signals for a large range of intrinsic dendritic noise. This novel mechanism suggests a functional role for active dendrites.

link.aps.org/pdf/10.1103/PhysRevX.7.031045

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