

WORKSHOP
Mathematical Neuroscience
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A coupla ducks:
slow currents, canards, and weak coupling

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Abstract

A recent interneuron model by Erisir et al (J. neurophys, 1999) introduces a slow potassium current which at low currents has the effect of producing mixed mode oscillations (MMO). When such neurons are coupled via gap junctions they form clustered states. We analyze this by considering the phase resetting curves of these neurons when in the MMO state and show that complex phase interactions are a natural consequence.