The background rastergram in the illustration represents the spatiotemporal pattern of spontaneous spike activity of a hippocampal CA3 recurrent network, which is reconstructed with a functional multineuronal calcium imaging (fMCI) method. The rastergram is vectorized along the time axis and analyzed by principal component analysis and Dunn’s clustering algorithm (top right). In the principal component coordinate system, network states, defined by active neuronal ensembles, are stable, but heterogeneous and plastic, that is, cortical networks undergo spontaneous changes in their internal structures, and the dynamics are likely governed by local attractors, which can be quasi-quantified by the Botzmann equation (bottom left). For more information, see the article by Sasaki et al., this issue (pages 517–528).

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