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Information processing in the *E. coli* Chemotaxis Network LIN WANG, SIMA SETAYESHGAR, Department of Physics, Indiana University, Bloomington, IN — Biochemical signal transduction, broadly defined as the conversion of the concentration of an input signal to an output response, is the most basic level of biological information processing. The chemosensory pathway in bacterial chemotaxis is the best-characterized signal transduction network, and as such it provides an ideal system for probing the physical principles governing complex cellular signaling and response. Using an experimentally realistic stochastic implementation of the *E. coli* chemotaxis network and motor response, we investigate optimality of the chemotactic response in terms of input/output information transmission.

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