

## Decoding bacterial communication

Many bacteria communicate with each other through the exchange of chemical signals, in a behavior known as quorum sensing (QS). A famous example is the signaling behavior of *Vibrio fischeri*, a marine bacterium that uses QS to regulate its own bioluminescence during symbiosis with a fish or squid host. Such QS circuits may superficially appear to serve a simple biological purpose, but a closer look at their design suggests much more complex functionality. Measurements of noise and information throughput via QS at the single cell level suggest that some simple interpretations of QS are likely incorrect. However theory and experiment both suggest that QS can enable some surprising collective behaviors in bacterial colonies. I will present an overview of the *V. fischeri* QS circuit as a model for understanding this ubiquitous bacterial behavior from a physical perspective.