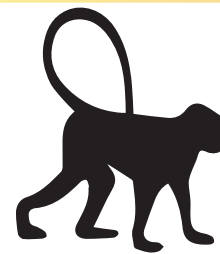
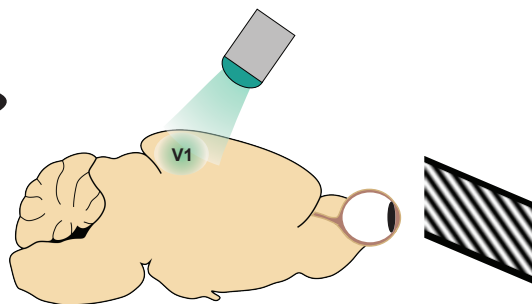


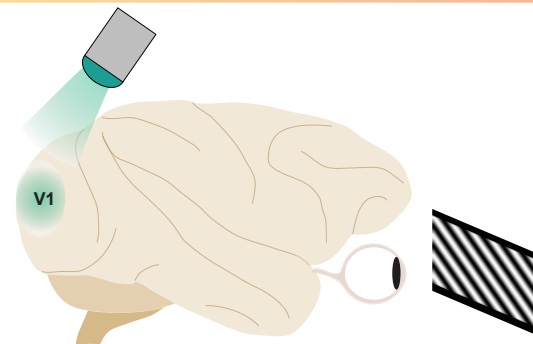
Species



Mouse



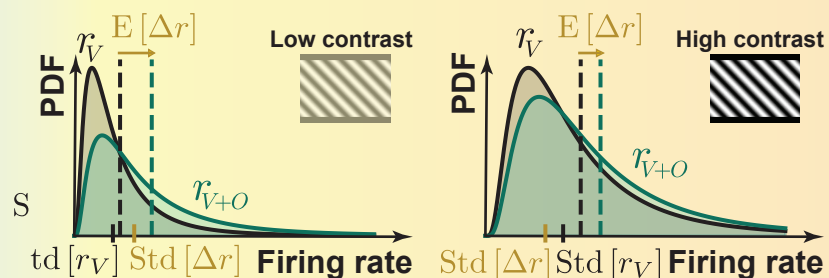
Monkey



r_V Rate response to visual stimulus r_{V+O} Rate response to visual AND optogenetic stimulus $\Delta r = r_{V+O} - r_V$ Optogenetic response

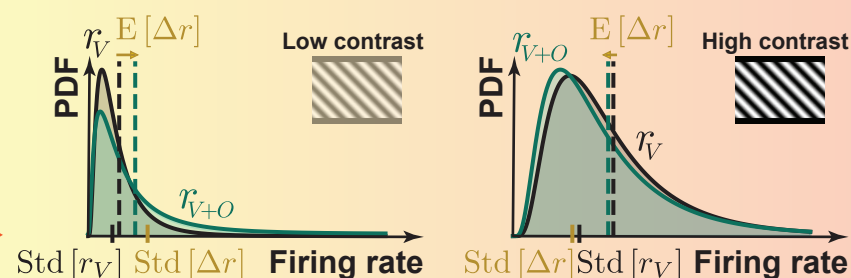
Phenomenon

Weak Reshuffling



- Opto stim to E cause net excitation: ($E[\Delta r] > 0$)
- However, typical opto responses are
- Much larger than mean opto response: ($Std[\Delta r] \gg E[\Delta r]$)
- Comparable to typical visual responses: ($Std[\Delta r] \approx Std[r_V]$)

Strong Reshuffling

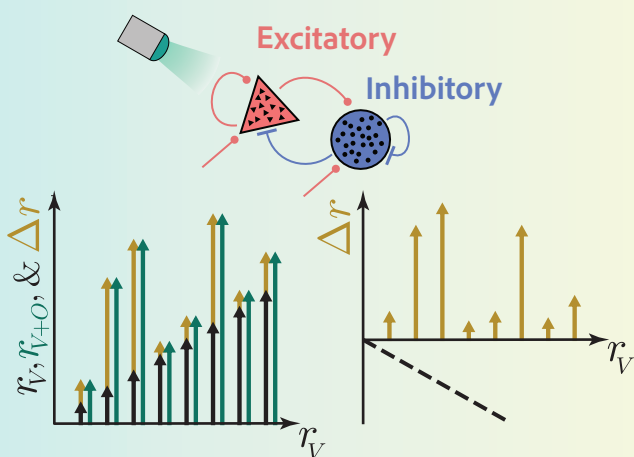


- Opto stim to E causes no net excitation: ($E[\Delta r] \approx 0$)
- Does not change firing rate distribution
- However, typical opto responses are
- Comparable to typical visual responses: ($Std[\Delta r] \approx Std[r_V]$)

Weak Coupling

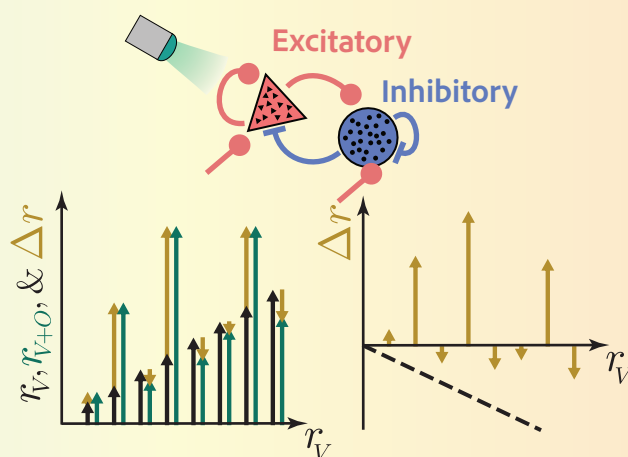
Moderate Coupling

Strong Coupling



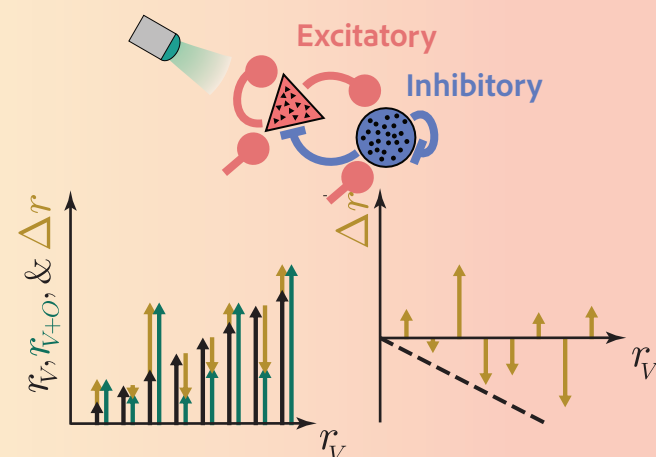
No Reshuffling

- Opto stim is purely excitatory
- Positive correlation between visual response r_V and opto response Δr



Weak Reshuffling

- No correlation between visual response r_V and opto response Δr



Strong Reshuffling

- Negative correlation between visual response r_V and opto response Δr

Strong coupling produces strong reshuffling. This strong coupling can be more biologically plausible (weaker) with structured connectivity than with random connectivity

Mechanism