1 Results

talk about time series - what features characterize each model? -Compare models by comparing features of their time series: Burst Duration, Interburst Interval, etc. From these generally trend are clear: as Simple visual comparison of a section of membrane potential time series reveals the general trends created Yan model characterized by longer burst duration and more spiking along the leading edge of each burst. Comparing time series Figures 1 and **??**, we see that at the low end of the tested g_{NaP} range (1.8 nS)...and at the end of the range, when g_{NaP} = 4.2 nS, we see ...
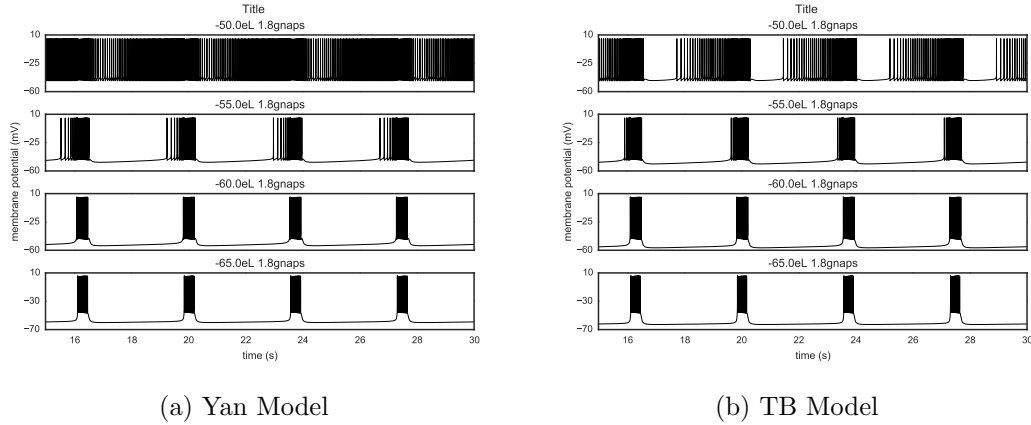

(a) Yan Model   (b) TB Model

Figure 1: Time series generated from Yan and TB models at all values of eL for g_{NaP} = 1.8 nS.

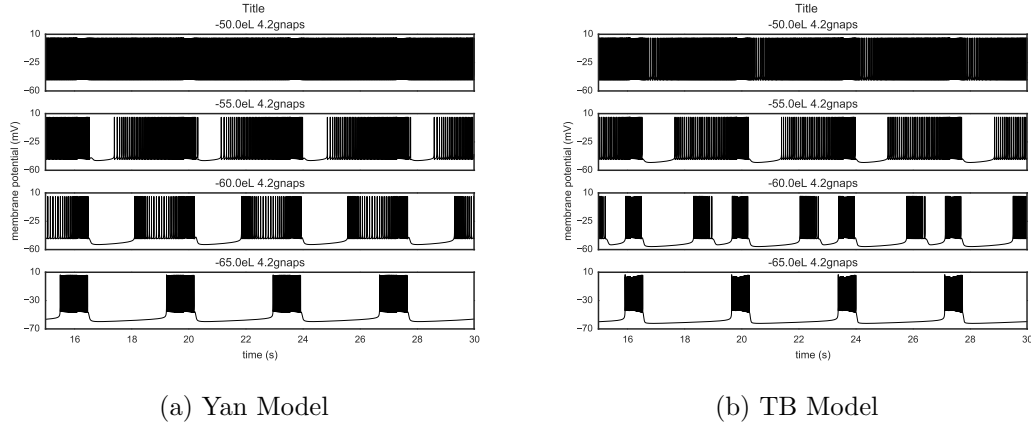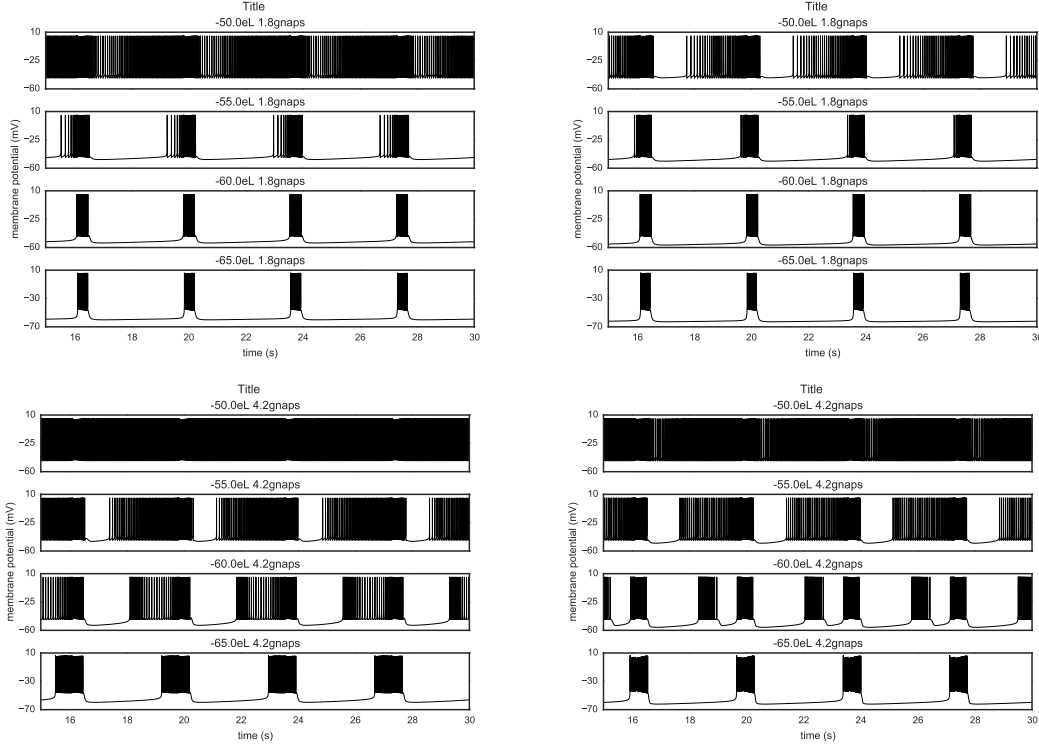(a) Yan Model   (b) TB Model

Figure 2: Time series generated from Yan and TB models at all values of eL for g_{NaP} = 4.2 nS.

1.1 Total Cycle Time, Burst Duration, Interburst Interval

-Interesting to note that while most of the measures vary considerably depending on the model and parameters used to generate the time series, Total Cycle exhibits little-to-no change reffig:hm txt. The single exception, caused by bi-modal bursting behavior 2b, occurs in the TB model when eL=-60.0 mV and g_{NaP}=4.2 nS.

Average total cycle time, the time from the start of one burst to the start of another, was very uniform between models for all parameter sets that exhibited bursting (Fig [**??**]). The only point of

significant difference was at $eL = -60 g_{nap} = 4.2$ where the value for the TB model was half that of the Yan model, due to the two modes of interburst interval present in for the TB model but not for the Yan model (Fig [**??**]).

Where bursting occurs in the Yan model, burst duration for Yan increases more rapidly than TB as eL increases. For $eL = -55mV$, burst duration is different at all tested g_{NaP} values. Differences in burst duration between the two models does not change significantly with change in g_{NaP}. For Yan, bursting does not occur while $eL = -50mV$, while bursting occurs at $eL = -50$, $g_{NaP} = 1.8, 2.4$.

While interburst interval and burst duration display the same pattern of significance, the patterns visible in their values are flipped. This is unsurprising, since Total Cycle Time, the summation of Interburst interval and burst duration, was nearly invariant across all model-parameter combinations. The only exception, for $eL = -50.0$, $g_{NaP} = 2.4$ where interburst interval for the TB model shrinks to 0.62 seconds, which is apparently not significantly different from 0.

1.2   Peak within Bursts Measures
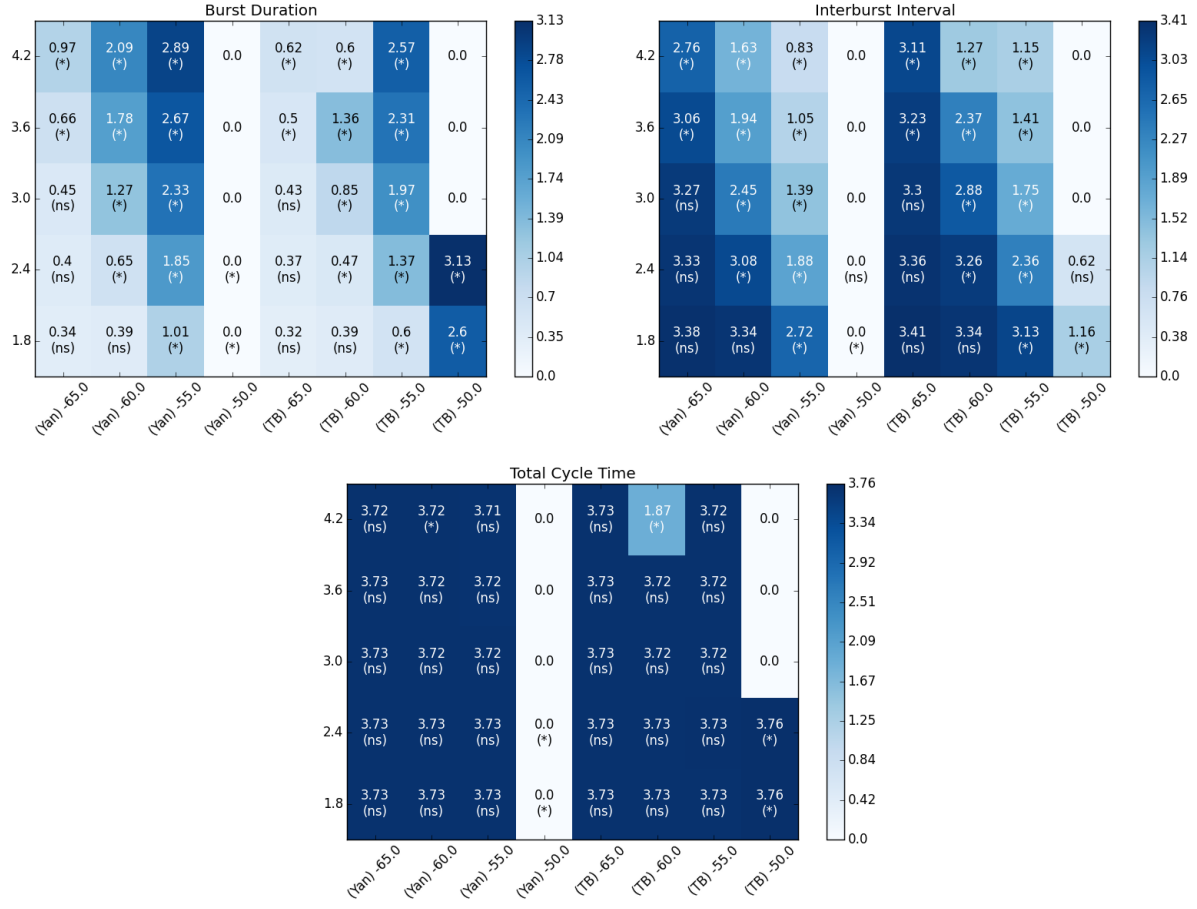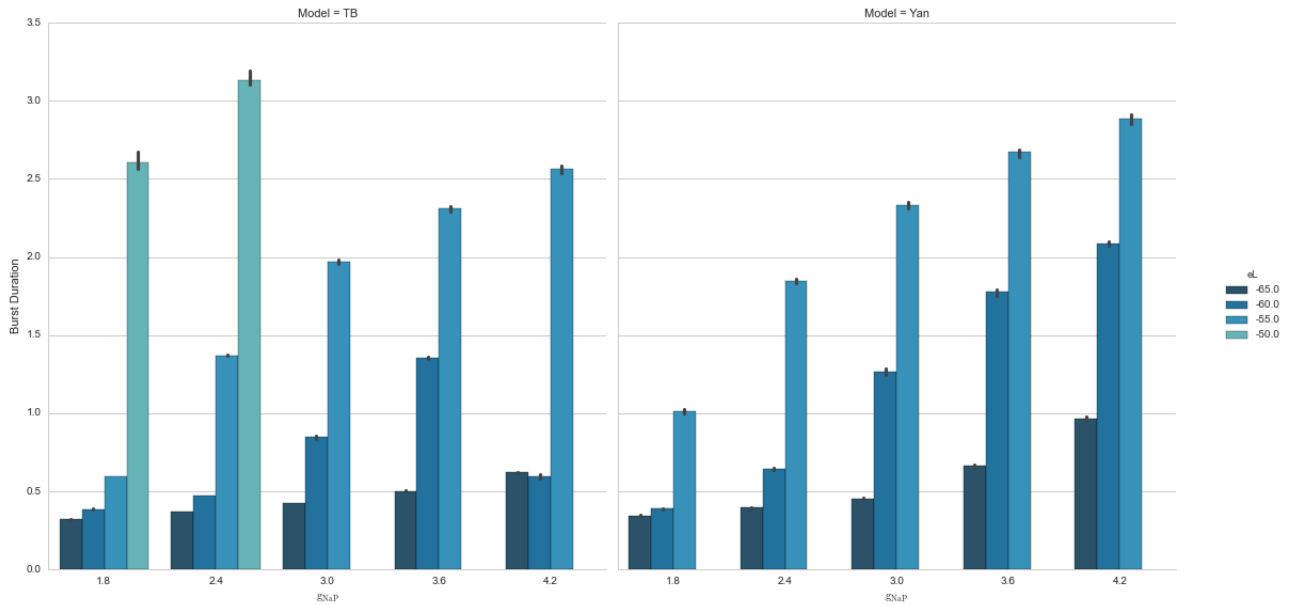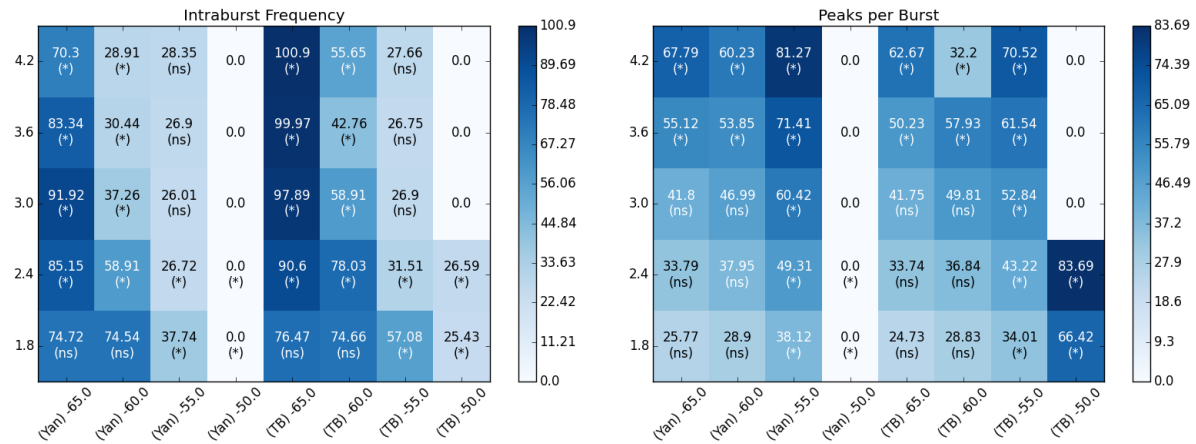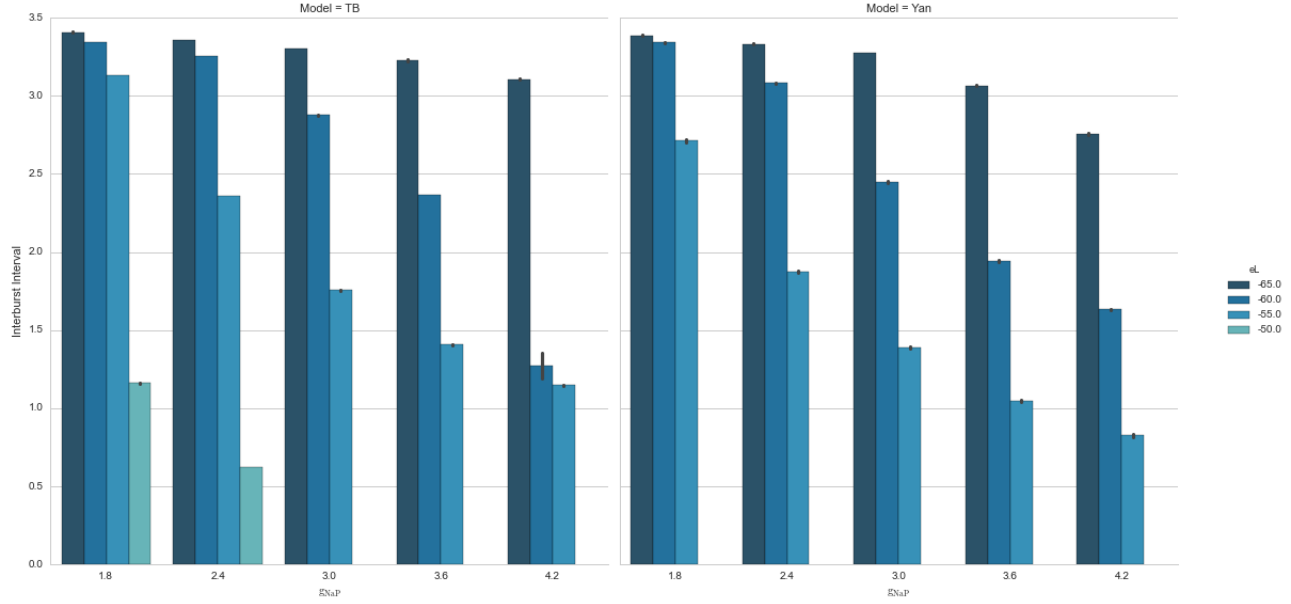
1.3   Peak Measures

Figure 3: Heat map showing variations in total cycle time with changes in eL, g_{NaP}, and model. Zeroes indicate tonic spiking.

(a) Intraburst Frequency
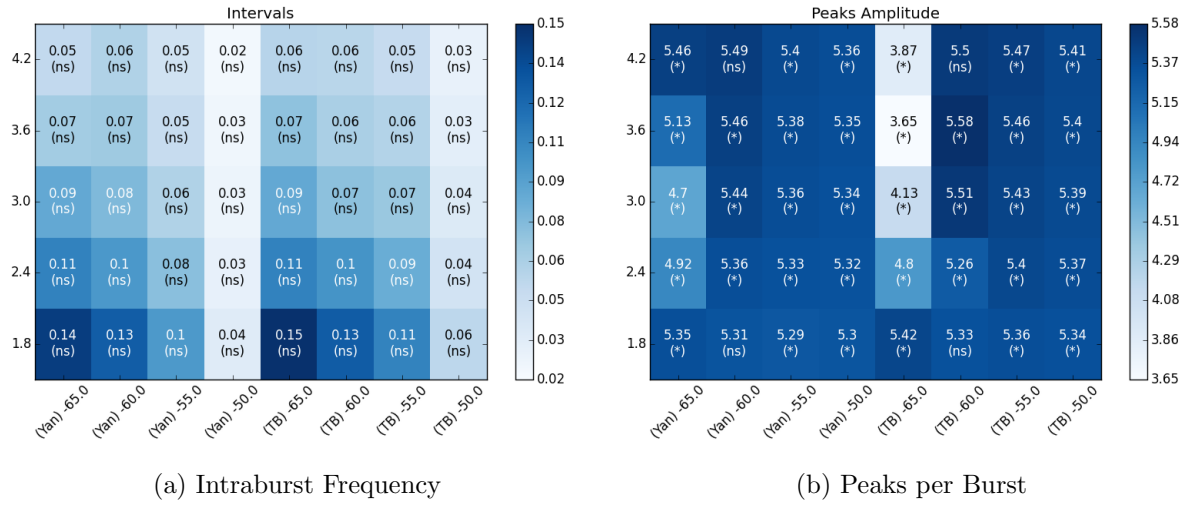
(b) Peaks per Burst

Figure 4

(a) Intraburst Frequency   (b) Peaks per Burst

Figure 5