Quiz 6.3: Diffusive noise

Membrane potential distribution

0 points possible (ungraded)
Consider a leaky integrate-and-fire model with diffusive noise:

- [ ] The membrane potential distribution is always Gaussian.
- [ ] The membrane potential distribution is Gaussian for any time-dependent input.
- [x] The membrane potential distribution is approximately Gaussian for any time-dependent input, as long as the mean trajectory stays 'far' away from the firing threshold. ✔
- [x] The membrane potential distribution is Gaussian for stationary input in the absence of a threshold. ✔
- [ ] The membrane potential distribution is always Gaussian for constant input and fixed noise level.

对于这个模型，而不是对于真实的！

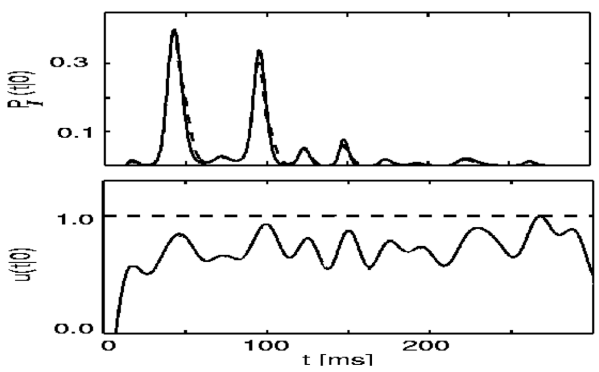
✖

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Time to first spike

0 points possible (ungraded)
Consider a leaky integrate-and-fire model with diffusive noise for time-dependent input. The ISI distribution is taken as the time to first spike after the beginning of the stimulation. The figure (taken from an earlier slide) shows that



这个不对，如果前面大概率有一个spike，那么后面即使很高，spike的概率也很小。

- [x] The interspike interval distribution is maximal where the determinstic reference trajectory is **closest** to the threshold.
- [x] The interspike interval vanishes for very long intervals if the deterministic reference trajectory has stayed close to the threshold before – even if for long intervals it is very close to the threshold. ✔
- [x] If there are several peaks in the interspike interval distribution, peak n is always of smaller amplitude than peak n-1.
- [x] I would have ticked the same boxes (in the list of three options above) for a leaky integrate-and-fire model with escape noise. ✔

✖

肯定不是always，图上就有很明显后面比前面高的。

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Answers are displayed within the problem