From: **NSR Editorial Office** editnsr@jnss.org
Subject: Review for Neuroscience Research - invitation reminder: NSR-D-25-00013
Date: 21 January 2025 at 23:00
To: alexander_bates@hms.harvard.edu

NO

Manuscript Number: NSR-D-25-00013
Classification of Neuronal Responses to Mechanosensory Stimuli in the Honey Bee Antennal Lobe

Dear Dr. Bates,

On Jan 16, 2025 we invited you to review the above referenced manuscript, as we believe it falls within your expertise and interest.

This message is to remind you of this invitation as we have not yet received your agreement to review. The abstract for this manuscript is included below.

You should treat this invitation, the manuscript and your review as confidential. You must not share your review or information about the review process with anyone without the agreement of the editors and authors involved, even after publication. This also applies to other reviewers' "comments to author" which may be shared with you on decision (and vice versa).

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If you decline to review we would appreciate your suggestions for alternate reviewers.

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Since timely reviews are of utmost importance to authors, we would appreciate receiving your review within 14 days of accepting this invitation.

We hope you will be able to review this manuscript.

Thank you in advance for your contribution and time.

Kind regards,

Neuroscience Research

Abstract:
While the antennal lobe (AL) has primarily been studied from the perspective of olfaction, some reports in the literature show that AL neurons respond not only to chemosensory input, but also to mechanosensory input in the form of wind buffeting the antennae. However, the detailed nature of mechanosensory responses to wind speed, and the functional role of such input within the AL, remain, in large part, to be elucidated. In this combined experimental and analytical work, spiking activity from AL neurons in response to unscented air puffs delivered at various speeds is recorded and analyzed to extract trends in response patterns. We begin by aggregating data over all wind speeds and using the time-averaged firing rate over either the peri-stimulus or post-stimulus period to cluster neuronal responses within each of these temporal epochs. This methodology allows for neither a fine discrimination among response patterns nor an assessment of changes in a neuron's response pattern across wind speeds; hence, we then cluster neuronal response curves, employing a metric termed the Hausdorff distance to measure the differences between neuronal responses over the conjoined peri- and post-stimulus epochs, for individual wind speeds. We find widespread mechanosensory responses among AL neurons that cluster into several categories, and, interestingly, observe that the response type of an individual neuron can shift with changes in wind speed.

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