

## Prof. Dr. Keram Pfeiffer – Publications

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### REFEREED ORIGINAL PAPERS

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20. Pegel U, **Pfeiffer K**, Homberg U (in press): Integration of celestial compass cues in the central complex of the locust brain. *J Exp Biol* doi: 10.1242/jeb.171207
19. de Vries L, **Pfeiffer K**, Trebels B, Adden AK, Green K, Warrant E, Heinze S (2017): Comparison of navigation-related brain regions in migratory versus non-migratory noctuid moths. *Front Behav Neurosci.* 11:158. doi: 10.3389/fnbeh.2017.00158
18. Held M, Berz A, Hensgen R, Muenz TS, Scholl C, Rössler W, Homberg U, **Pfeiffer K** (2016): Microglomerular synaptic complexes in the sky-compass network of the honeybee connect parallel pathways from the anterior optic tubercle to the central complex. *Front Behav Neurosci.* 10:716.
17. Beetz J, **Pfeiffer K**, Homberg U (2016): Neurons in the brain of the desert locust *Schistocerca gregaria* sensitive to polarized light at low stimulus elevations. *J Comp Physiol A*, DOI:10.1007/s00359-016-1116-x.
16. Zeller M, Held M, Bender J, Berz A, Heinloth T, Hellfritz T, **Pfeiffer K** (2015): Trans-medulla neurons in the sky compass network of the honeybee (*Apis mellifera*) are a possible site of circadian input. *PLOS ONE* 10:e0143244.
15. **Pfeiffer K**, French AS (2015): Naturalistic stimulation changes the dynamic response of action potential encoding in a mechanoreceptor. *Front Physiol* 6:303.
14. Bech M, Homberg U, **Pfeiffer K** (2014): Receptive fields of locust brain neurons are matched to polarization patterns of the sky. *Curr Biol.* 24:2124–2129.  
[This publication was featured in a dispatch. (Krapp H (2014): Sensory Integration: Neuronal Filters for Polarized Light Patterns. *Curr Biol* 24:R840–841)]
13. el Jundi B, **Pfeiffer K**, Heinze S, Homberg U (2014): Integration of polarization and chromatic cues in the insect sky compass. *J Comp Physiol A* 200:575-589.  
[This publication is an invited submission and comprises both reviewed and original data. I contributed original data.]
12. Torkkeli PH, Meisner S, **Pfeiffer K**, French AS (2012): GABA and glutamate receptors have different effects on excitability and are differentially regulated by calcium in spider mechanosensory neurons. *Eur J Neurosci* 36: 3602–3614.
11. **Pfeiffer K**, Kinoshita M (2012): Segregation of visual inputs from different regions of the compound eye in two parallel pathways through the anterior optic tubercle of the bumblebee (*Bombus ignitus*). *J Comp Neurol* 520:212–229.  
[Provided the cover photograph.]
10. **Pfeiffer K**, Torkkeli PH, French AS (2012): Activation of GABA<sub>A</sub> receptors modulates all stages of mechanoreception in spider mechanosensory neurons. *J Neurophysiol* 107:196–204.  
[Provided photographs for the cover.]

9. el Jundi B, **Pfeiffer K**, Homberg U (2011): A distinct layer of the medulla integrates sky compass signals in the brain of an insect. *PLoS ONE* 6(11):e27855.
8. French AS, **Pfeiffer K** (2011): Measuring entropy in continuous and digitally filtered neural signals. *J Neurosc Methods* 196:81–87.
7. **Pfeiffer K**, Negrello M, Homberg U (2011): Conditional perception under stimulus ambiguity: Polarization- and azimuth-sensitive neurons in the locust brain are inhibited by low degrees of polarization. *J Neurophysiol* 105:28–35.  
[Provided the cover photograph.]
6. **Pfeiffer K**, French AS (2009): GABAergic excitation of spider mechanoreceptors increases information capacity by increasing entropy rather than decreasing jitter. *J Neurosci* 29:10989–10994.
5. **Pfeiffer K**, Panek I, Höger U, French AS, Torkkeli P (2009): Random stimulation of spider mechanosensory neurons reveals long-lasting excitation by GABA and muscimol. *J Neurophysiol* 101:54–66.
4. **Pfeiffer K**, Homberg U (2007): Coding of azimuthal directions via time-compensated combination of celestial compass cues. *Curr Biol* 17:960–965.  
[This publication was featured as the cover article and in a dispatch. (Krapp H (2007): Polarization vision: how insects find their way by watching the sky. *Curr Biol* 17:R557–560)]
3. Kinoshita M, **Pfeiffer K**, Homberg U (2007): Spectral properties of identified polarized-light sensitive interneurons in the brain of the desert locust *Schistocerca gregaria*. *J Exp Biol* 210:1350–1361.  
[This publication was featured in "Inside JEB". Blackburn L (2007): Locusts' light response. *J Exp Biol* 210:i–a]
2. **Pfeiffer K**, Kinoshita M, Homberg U (2005): Polarization-sensitive and light-sensitive neurons in two parallel pathways passing through the anterior optic tubercle in the locust brain, *J Neurophysiol* 94:3903–3915.
1. Homberg U, Hofer S, **Pfeiffer K**, Gebhardt S (2003): Organization and neural connections of the anterior optic tubercle in the brain of the locust, *Schistocerca gregaria*, *J Comp Neurol* 462:415–430.

#### **REVIEW ARTICLES (R=refereed, I= invited)**

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4. **Pfeiffer K**, Homberg U (2014): Organization and functional roles of the central complex in the insect brain. *Ann Rev Entomol* 59:165–184.<sup>RI</sup>  
IF: 13.0
3. Homberg U, Heinze S, **Pfeiffer K**, Kinoshita M, el Jundi B (2011): Central neural coding of sky polarization in insects. *Phil Trans R Soc B* 366:680–687.<sup>RI</sup>
2. Homberg U, **Pfeiffer K**, Heinze S, Kinoshita M (2008): Central mechanisms of polarization vision and sky compass orientation. In: Shimozawa T, Hariyama T (Hrsg.) *Insect Mimetics*, Tokyo, NTS (in Japanese).<sup>I</sup>

1. Homberg U, Hofer S, Mappes M, Vitzthum H, **Pfeiffer K**, Gebhardt S, Müller M, Paech A (2004): Neurobiology of polarization vision in the locust *Schistocerca gregaria*. *Acta Biol Hung* 55:81–89.

## POPULAR SCIENCE ARTICLES

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1. **Pfeiffer K**, Homberg U (2007): A detector for the position of the sun in the locust brain. (original title in German: “Sonnenstand-Anzeiger im Heuschreckengehirn”), *BIOforum* 30:20-21.

## OTHER PUBLICATIONS

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3. **Pfeiffer K** (2015): Peripheral and central nervous processing of sensory information in two arthropod species. Original title in German: Periphere und zentralnervöse Verarbeitung sensorischer Informationen bei zwei Arthropodenspezies. Habilitation thesis, Philipps-University Marburg, Germany.
2. **Pfeiffer K** (2006): Coding of sky-compass information in neurons of the anterior optic tubercle of the desert locust *Schistocerca gregaria*. Doctoral thesis, Philipps-University Marburg, Germany.
1. **Pfeiffer K** (2001): Characterization of interneurons with ramifications in the anterior optic tubercle of the locust *Schistocerca gregaria*. Original title in German: Charakterisierung von Interneuronen mit Verzweigungen im anterioren optischen Tuberkel der Heuschrecke *Schistocerca gregaria*. Diploma thesis (comparable to master thesis), Philipps-University Marburg, Germany.