Prof. Dr. Wolfgang Rössler
Behavioral Physiology & Sociobiology (Zoology II)
Biozentrum
University of Würzburg
Am Hubland
97074 Würzburg, Germany

Tel.: +49 931 318 4306
Fax: +49 931 318 4309

email: roessler@biozentrum.uni-wuerzburg.de
www: http://www.zoo2.biozentrum.uni-wuerzburg.de

June 15th, 2021

PUBLICATIONS: WOLFGANG RÖSSLER

PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

1. **Rössler W**, Bailey WJ, Schröder J, Kalmring K (1990) Resolution of time and frequency patterns in the tympanal organs of tettigoniids. I. Synchronization and oscillation in the activity of receptor populations. Zool Jb Physiol 94:83-99

2. Kalmring K, Schröder J, **Rössler W**, Bailey WJ (1990) Resolution of time and frequency patterns in the tympanal organs of tettigoniids. II. Its basis at the single receptor level. Zool Jb Physiol 94:203-215

3. Kalmring K, **Rössler W**, Ebendt R, Ahi J, Lakes R (1992) Structure, receptor cell arrangement and function of the auditory organs in the foreleg tibia of three bushcricket species. Acta Biologica Hungaria 43:441-449

4. **Rössler W** (1992): Postembryonic development of the complex tibial organ in the foreleg of the bushcricket Ephippiger ephippiger (Orthoptera, Tettigoniidae). Cell Tissue Res 269:505-514

5. **Rössler W** (1992) Functional morphology and development of tibial organs in the legs I, II and III of the bushcricket Ephippiger ephippiger (Insecta, Ensifera). Zoomorphology 112:181-188

6. **Rössler W**, Schul J (1993) Parallel processing of complex song parameters in the auditory system of two closely related bushcricket species. Zool Jb Physiol 97:95-110

7. Nebeling B, **Rössler W**, Jatho M (1993) Comparison of the physiology of the auditory receptor organs in Gryllus bimaculatus and Ephippiger ephippiger; CSD-recordings within the auditory neuropiles. J Neurobiol 24(4):447-455

8. Kalmring K, **Rössler W**, Ebendt R, Ahi J, Lakes R (1993) The auditory receptor organs in the forelegs of bushcrickets: Physiology, receptor cell arrangement, and morphology of the tympanal and intermediate organs of three closely related species. Zool Jb Physiol 97:75-94

9. **Rössler W**, Bickmeyer U (1993) Locust medial neurosecretory cells in vitro: morphology, electrophysiological properties and effects of temperature. J Exp Biol 183:323-339

10. Lin Y, Kalmring K, Jatho M, Sickmann T, **Rössler W** (1993) The auditory receptor organs in the forelegs of Gampsocleis gratiosa (Tettigoniidae); morphology and function of the organs in comparison to the frequency parameters of the conspecific song. J Exp Zool 267:377-388

11. **Rössler W**, Hübschen A, Schul J, Kalmring K (1994) Functional morphology of bushcricket ears: comparison between two species belonging to the Phaneropterinae and Decticinae (Insecta, Ensifera). Zoomorphology 114:39-46

12. Lin Y, **Rössler W**, Kalmring K (1994) The complex tibial organs in the fore-, mid- and hindlegs of the bushcricket Gampsocleis gratiosa (Tettigoniidae) I. Comparison of the morphology of the organs. J Morphol 221:191-198

13. Bickmeyer U, **Rössler W**, Wiegand H (1994) Calcium channel currents in cultured pars intercerebralis neurosecretory cells of adult Locusta migratoria. J Exp Biol 197:393-398

14. Kalmring K, **Rössler W**, Unrast C (1994) The complex tibial organs in the fore-, mid- and hindlegs of the bushcricket Gampsocleis gratiosa (Tettigoniidae) II. Comparison of the physiology of the organs. J Exp Zool 270:155-161

15. **Rössler W**, Kalmring K (1994) Similar structural dimensions in bushcricket auditory organs in spite of different foreleg size: Consequences for auditory tuning. Hearing Res 80:191-196

16. Bickmeyer U, **Rössler W**, Wiegand H (1994) Omega AGA Toxin IVa blocks high-voltage-activated calcium channel currents in cultured pars intercerebralis neurosecretory cells of adult Locusta migratoria. Neurosc Lett 181:113-116

17. Jeram S, **Rössler W**, Cokl A, Kalmring K (1995) Structure of the atympanate tibial organs in the legs of the cave-living Ensifera Troglophilus neglectus (Gryllacridoidea, Raphidophoridae). J Morphol 223:109-118

18. Kalmring K, **Rössler W**, Hoffmann E, Jatho M, Unrast C (1995) Causes of the differences in detection of low frequencies in the auditory receptor organs of two species of bushcrickets. J Exp Zool 272:103-115

19. Lin Y, **Rössler W**, Kalmring K (1995) Morphology of the tibial organs of acridids: comparison of subgenual- and distal organs in fore-, mid-, and hindlegs of Schistocerca gregaria (Acrididae, Catantopinae) and Locusta migratoria (Acrididae, Oedipodinae). J Morphol 226:351-360

20. Cokl A, Kalmring K, **Rössler W** (1995) Physiology of atympanate tibial organs in forelegs and midlegs of the cave-living Ensifera, Troglophilus neglectus (Raphidophoridae, Gryllacridoidea). J Exp Zool 273:376-388

21. Kalmring K, **Rössler W**, Jatho M, Hoffmann E (1996) Comparison of song frequency and receptor tuning in two closely related bushcricket species. Acta Biologica Hungaria 46:457-469

22. Kalmring K, Jatho M, **Rössler W**, Sickmann T (1997) Acousto-vibratory communication in bushcrickets (Orthoptera: Tettigoniidae). Entomol Gener 21: 265-291

23. Hildebrand JG, **Rössler W**, Tolbert LP (1997) Postembryonic development of the olfactory system in the moth Manduca sexta: Primary afferent control of glomerular development. Seminars in Cell & Developmental Biology, Vol. 8: 163-170

24. **Rössler W**, Tolbert LP, Hildebrand JG (1998) Early formation of sexually dimorphic glomeruli in the developing olfactory lobe of the brain of the moth Manduca sexta. J Comp Neurol 396:415-428

25. **Rössler W**, Randolph PW, Tolbert LP, Hildebrand JG (1999) Axons of olfactory receptor cells of trans-sexually grafted antennae induce development of sexually dimorphic glomeruli in Manduca sexta. J Neurobiol 38:521-541

26. **Rössler W**, Oland LA, Higgins MR, Hildebrand JG, Tolbert LP (1999) Development of a glia-rich axon-sorting zone in the olfactory pathway of the moth Manduca sexta. J Neuroscience 19:9865-9877

27. **Rössler W**, Tolbert LP, Hildebrand JG (2000) Importance of timing of olfactory receptor-axon outgrowth for glomerulus development in Manduca sexta. J Comp Neurol 425:233-243

28. Wegerhoff R, **Rössler W**, Higgins MR, Oland LA, Tolbert LP (2001) Effects of fenvalerate, a pyrethroid insectizide, on development of olfactory glomeruli in the moth Manduca sexta. J Comp Neurol 430:533-541

29. Gibson NJ, **Rössler W**, Nighorn AJ, Oland LA, Hildebrand JG, Tolbert LP (2001) Neuron-glia communication via nitric oxide is essential in establishing antennal-lobe structure in Manduca sexta. Dev Biol 240:326-339

30. Manzini I, **Rössler W**, Schild D (2002) cAMP-independent responses of olfactory neurons in Xenopus laevis tadpoles and their projetion onto olfactory bulb neurons. J Physiol 545:475-484

31. **Rössler W**, Kuduz J, Schürmann FW, Schild D (2002) Aggregation of F-actin in olfactory glomeruli: a common feature of glomeruli across phyla. Chem Senses 27:803-810

32. Czesnik D, **Rössler W**, Kirchner F, Gennerich A, Schild D (2003) Neuronal representation of odorants in the olfactory bulb of Xenopus laevis tadpoles. Eur J Neurosci 17:113-118

33. Nezlin L, Heermann S, Schild D, **Rössler W** (2003) Organization of glomeruli in the main olfactory bulb of Xenopus laevis tadpoles. J Comp Neurol 464:257-268

34. Tautz J, Maier S, Groh C, **Rössler W**, Brockmann A (2003) Behavioral performance in adult honey bees is influenced by the temperature experienced during their pupal development. PNAS 100:7343-7347

35. Frambach I, **Rössler** W, Winkler M, Schürmann FW (2004) F-actin at identified synapses in the mushroom body neuropil of the insect brain. J Comp Neurol 475:303-314

36. Groh C, Tautz J, **Rössler W** (2004) Synaptic organization in the adult honey bee brain is influenced by brood-temperature control during pupal development. PNAS 101:4268-4273. https://doi.org/10.1073/pnas.0400773101

37. Hoyer SC, Liebig J, **Rössler W** (2005) Biogenic amines in the ponerine ant *Harpegnathos saltator*: serotonin and dopamine immunoreactivity in the brain. Arthopod Struct Dev 34:429-440.

38. Kleineidam CJ, Obermayer M, Halbich W, **Rössler W** (2005) A macroglomerulus in the antennal lobe of leaf-cutting ant workers and its possible functional significance. Chemical Senses 30:883-892

39. Kelber C, **Rössler W,** Kleineidam CJ (2006) Multiple olfactory receptor neurons and their axonal projections in the antennal lobe of the honeybee *Apis mellifera.* J Comp Neurol 496:395-405.

40. Groh C, Ahrens D, **Rössler W** (2006) Environment- and age-dependent plasticity of synaptic complexes in the mushroom bodies of honeybee queens. Brain, Behavior & Evolution 68:1-14.

41. Wertz A, **Rössler W**, Obermayer M, Bickmeyer U (2006) Functional neuroanatomy of the rhinophore of *Aplysia punctata.* Frontiers in Zoology 3:6.

42. Kirschner S, Kleineidam C J, Zube C, Rybak J, Grünewald, B., **Rössler, W.** (2006). Dual olfactory pathway in the honeybee Apis mellifera. J Comp Neurol 499:933-952.

43. Herzner G, Goettler W, Kroiss J, Purea A, Jakob PM, Webb AG, **Rössler W**, Strohm E (2007) Males of a solitary wasp possess a postpharyngeal gland. Arthropod Structure & Dev 36: 123-133.

44. Wertz A, **Rössler W**, Obermayer M, Bickmeyer U. (2007) Functional neuroanatomy of the rhinophore of *Archidoris pseudoargus*. Helgol Marine Res 61:135-142

45. Kleineidam CJ, **Rössler W**, Hölldobler B, Roces F. (2007) Perceptual differences in trail-following leaf-cutting ants relate to body size. J Insect Physiol 53:1233-1241

46. Manzini I, Czesnik D, Heermann S, Brase C, Schild D, **Rössler W** (2007) Synaptic vesicle protein distribution and odor mapping in glomeruli of the olfactory bulb of *Xenopus laevis* tadpoles. Eur J Neurosci, 26: 925-934

47. Zube C, Kleineidam CJ, Kirschner S, Neef J, **Rössler W** (2008). Organization of the olfactory pathway and odor processing in the antennal lobe of the ant *Camponotus floridanus*. J Comp Neurol 506:425-441

48. Groh C, **Rössler W** (2008) Caste-specific postembryonic development of primary and secondary olfactory centers in the female honeybee brain. Arthropod Struct & Dev 37:459-468

49. Zube C, **Rössler W** (2008) Caste- and sex-specific adaptations within the olfactory pathway in the brain of the ant *Camponotus floridanus*. Arthropod Struct & Dev 37:469-479

50. Kelber C, **Rössler W**, Roces F, Kleineidam CJ (2009) The antennal lobes of fungus-growing ants (Attini): neuroanatomical traits and evolutionary trends. Brain, Behavior & Evolution 73: 273-284

51. Brandstaetter AS, **Rössler W**, Kleineidam CJ (2010) Dummies versus Air Puffs: efficient stimulus delivery for low-volatile odors. Chem Senses, 35:323-333

52. Kelber C, **Rössler W**, Kleineidam CJ (2010) Phenotypic plasticity in number of glomeruli and sensory innervation of the antennal lobe in leaf-cutting ant workers (*A. vollenweideri*). Dev Neurobiol 70: 222-234 (with cover).

53. Galizia CG, **Rössler W** (2010) Parallel olfactory systems in insects: anatomy and function. Annual Rev Entomol 55: 399-420

54. Stieb S, Muenz TS, Wehner R, **Rössler W** (2010) Visual experience and age affect synaptic organization in the mushroom bodies of the desert ant *Cataglyphis fortis.* Dev Neurobiol, 70: 408-423 (with cover).

55. Hourcade B, Muenz TS, Sandoz JC, **Rössler W**, Devaud JM (2010) Long-term memory leads to synaptic reorganization in the mushroom bodies: a memory trace in the insect brain? J Neuroscience 30:6461-6465 (with comment in weekly news). https://doi.org/10.1523/JNEUROSCI.0841-10.2010

56.Groh C, **Rössler W**. (2011) Comparison of microglomerular structures in the mushroom-body calyx of neopteran insects. Arthopod Structure & Development 40:358-367 *doi:10.1016/j.asd.2010.12.002* (with cover).

57**. Rössler W**, Zube C. (2011) Dual olfactory pathway in Hymenoptera: evolutionary insights from comparative studies. Arthopod Structure & Development 40: 349-357 *doi:10.1016/j.asd.2010.12.001*

58. Stieb SM, Kelber C, Wehner R, **Rössler W**. (2011) Antennal-lobe organization in desert ants of the genus *Cataglyphis.* Brain, Behavior & Evolution 77:136-146. (assigned as Editor's choice for free online access).

59. Brandstaetter AS, **Rössler W**, Kleineidam CJ. (2011) Friends and foes from an ant brain's point of view – neuronal correlates of colony odors in a social insect. PloSOne 6 (6) 1-9. e21383. doi:10.1371/journal.pone.0021383

60. Pasch E, Muenz TS, **Rössler W**. (2011) CaMKII protein is differentially localized in dendritic compartments of mushroom body intrinsic neurons in the honeybee brain. J Comp Neurol 519: 3700-3712

61. Falibene A, **Rössler W**, Josens R (2012). Serotonin depresses feeding behaviour in ants. J Insect Physiol 58 (2012) 7–17

62. Stieb SM, Hellwig A, Wehner R, **Rössler W** (2012). Visual experience affects both behavioral and neuronal aspects in the individual life history of the desert ant *Cataglyphis fortis.* Dev Neurobiol 72: 729–742 (DOI: 10.1002/dneu.20982) (with cover).

63. Muenz TS, Maisonnasse A, Plettner E, Le Conte Y, **Rössler W** (2012). Sensory reception of the primer pheromone ethyl oleate. Naturwissenschaften 99:421-425 (DOI: 10.1007/s00114-012-0909-1)

64. Groh C, Lu Z, Meinertzhagen IA, **Rössler W** (2012). Age-related plasticity in the synaptic ultrastructure of neurons in the mushroom body calyx of the adult honeybee *Apis mellifera.* J Comp Neurol 520:3509-3527 (DOI: 10.1002/cne.23102).

65. Kupke J, Spaethe J, Mueller MJ, **Rössler W**, Albert S (2012) Molecular and biochemical characterization of the major royal jelly protein in bumblebees suggest a non-nutritive function. Insect Biochem Mol Biol, 42:647-654.

66. Brill MF, Rosenbaum T, Reus I, Kleineidam CJ, Nawrot MP, **Rössler W**. (2013) Parallel processing via a dual olfactory pathway in the honeybee. J Neurosci 33(6):2443-2456.

67. **Rössler W**, Brill M (2013) Parallel processing in the honeybee olfactory pathway: structure, function and evolution. J Comp Physiol A 199:981-996. DOI: 10.1007/s00359-013-0821-y

68. Sommer S, Weibel D, Furrer A, Blaser N, Wenzler NE, **Rössler W**, Wehner R. (2013) Group recruitment in a thermophilic desert ant, *Ocymyrmex robustior.* J Comp Physiol A 199:711-722. DOI 10.1007/s00359-013-0830-x.

69. **Rössler W**, Stengl M. (2013) Insect Chemoreception: a tribute to John G. Hildebrand. J Comp Physiol A 199:875-877. DOI 10.1007/s00359-013-0857-z

70. Sommerlandt F, **Rössler W**, Spaethe J. (2014) Elemental and non-elemental olfactory learning using PER conditioning in the bumblebee, *Bombus terrestris.* Apidologie 45:106–115. DOI: 10.1007/s13592-013-0227-4

71. Ito K, Shinomiya K, Ito M, Armstrong D, Boyan G, Hartenstein V, Harzsch S, Heisenberg M, Homberg U, Jenett A, Keshishian H, Restifo L, **Rössler W**, Simpson J, Strausfeld NJ, Strauss R, Vosshall LB; Insect Brain Name Working Group (2014) A systematic nomenclature for the

insect brain. Neuron 81:755-765. doi.org/10.1016/j.neuron.2013.12.017

72. Brill MF, Reuter M, **Rössler W**, Strube-Bloss MF (2014). Simultaneous long-term recordings at two neural processing stages in behaving honeybees. J Vis Exp 89, e51750, doi:10.3791/51750.

73. Albert S, Spaethe J, Grübel K, **Rössler W** (2014). Royal jelly-like protein localization reveals differences in hypopharyngeal glands buildup and conserved expression pattern in brains of bumblebees and honeybees. Biology Open 3:281-288 (doi:10.1242/bio.20147211)

74. Groh C, Kelber C, Grübel K, **Rössler W** (2014). Density of mushroom-body synaptic complexes limits intraspecies brain miniaturization in highly polymorphic leaf-cutting ants. Proc Royal Soc B 281 (no. 1785) (doi.org/10.1098/rspb.2014.0432).

75. Kropf J, Kelber C, Bieringer K, **Rössler W** (2014). Olfactory subsystems in the honeybee: sensory supply and sex-specificity. Cell Tissue Research 357:583-595 (doi:10.1007/s00441-014-1892-y)

76. Scholl C, Wang Y, Krischke M, Mueller MJ, Amdam G, **Rössler W** (2014) Light exposure leads to reorganization of microglomeruli in the mushroom bodies and influences juvenile hormone levels in the honeybee. Dev Neurobiol 74:1141-1153. (DOI 10.1002/dneu.22195)

77. Schmitt F, Vanselow JT, Schlosser A, Kahnt J, **Rössler W**, Wegener C (2015) Neuropeptidomics of the carpenter ant *Camponotus floridanus.* Journal of Proteome Research 14(3): 1504–1514. DOI: 10.1021/pr5011636

78. Muenz TS, Groh C, Maisonnasse A, Le Conte Y, Plettner E, **Rössler W** (2015) Synaptic plasticity in the mushroom-body calyx during adult maturation in the honeybee and possible pheromonal influences. Dev Neurobiol 75:1368-1384. DOI 10.1002/dneu.22290

79. Falibene A, Roces F, **Rössler W** (2015) Long-term avoidance memory formation is associated with a transient increase in mushroom body synaptic complexes in leaf-cutting ants. Front Behav Neurosci 9:84. DOI:10.3389/fnbeh.2015.00084

80. Ahmed Z, Fleischmann P, Zeeshan S, **Rössler W**, Dandekar T (2015) Ant-App-DB: a smart solution for monitoring arthropodsactivities, experimental data management and solar calculations without GPS in behavioral field studies. *F1000*Research (doi: 10.12688/ f1000research.5931.1)

81. Brill M, Meyer A, **Rössler W** (2015) It takes two - coincidence coding within the dual olfactory pathway of the honeybee, *Frontiers in Physiology 6*: 208. https://doi.org/10.3389/fphys.2015.00208

82. Muenz TS, Groh C, Maisonnasse A, Le Conte Y, Plettner E, **Rössler W** (2015) Synaptic plasticity in the mushroom-body calyx during adult maturation in the honeybee and possible pheromonal influences. Dev Neurobiol 75:1368-1384. DOI 10.1002/dneu.22290

83. Strube-Bloss M, Brown A, Spaethe J, Schmitt T, **Rössler W** (2015). Extracting the behaviorally relevant stimulus: unique neural representation of farnesol, a component of the recruitment pheromone of *Bombus terrestris.* PLoS ONE 10(9): e0137413. doi:10.1371 journal.pone.0137413

84. Scholl C, Kübert N, Muenz TM, **Rössler W** (2015). CaMKII knockdown affects both early and late phases of olfactory long-term memory in the honeybee. Journal of Experimental Biology 218:3788-3796. doi:10.1242/jeb.124859

85. Schmitt F, Stieb SM, Wehner R, **Rössler W** (2016) Experience-related reorganization of giant synapses in the lateral complex: potential role in plasticity of the sky-compass pathway in the desert ant *Cataglyphis fortis.* Dev Neurobiol 76:390-404. DOI: 10.1002/dneu.22322 (with cover)

86. Yilmaz A, Lindenberg A, Albert S, Grübel K, Spaethe J, **Rössler W**, Groh C (2016) Age-related and light-induced plasticity in opsin gene expression and in primary and secondary visual centers of the nectar-feeding ant *Camponotus rufipes*. Dev Neurobiol 76:1041-1057. doi: 10.1002/dneu22374 (with cover)

87. Falibene A, Roces F, **Rössler W**, Groh C (2016) Daily thermal fluctuations experienced by pupae via rhythmic nursing behavior increase numbers of mushroom body microglomeruli in the adult ant brain. Front Behav Neurosci 10:73. doi: 10.3389/fnbeh.2016.00073

88. Becker N, Kucharski R, **Rössler W**, Maleszka R (2016) Age-dependent transcriptional and epigenetic responses to light exposure in the honey bee brain. FEBS Open Bio 6: 622–639 doi:10.1002/2211-5463.12084 (with cover)

89. Fleischmann PN, Christian M, Müller VL, **Rössler W**, Wehner R (2016) Learning walks and the acquisition of landmark information in desert ants, *Cataglyphis fortis.* Journal of Experimental Biology 219: 3137-3145 (doi: 10.1242/jeb.140459).

90. Held M, Berz A, Hensgen R, Münz 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 10:186. doi: 10.3389/fnbeh.2016.00186

91. Sommerlandt FMJ, Spaethe J, **Rössler W**, Dyer AG (2016). Does fine color discrimination learning in free-flying honeybees change mushroom-body calyx neuroarchitecture? PLoS One 11(10): e0164386. doi:10.1371/journal.pone.0164386

92. Schmitt F, Vanselow JT, Schlosser A, Wegener C, **Rössler W** (2017) Neuropeptides in the desert ant *Cataglyphis fortis*: Mass spectrometric analysis, localization, and age-related changes. J Comp Neurol 525:901-918. doi: 10.1002/cne.24109

93. Sommerlandt FMJ, **Rössler W,** Spaethe J (2017) Impact of light and alarm pheromone on immediate early gene expression in the European honeybee, *Apis mellifera.* Entomological Science 20:122-126 doi: 10.1111/ens.12234.

94. Hoch H, Čokl A, Jatho M, Lakes-Harlan R, **Rössler W**, Stiedl O. (2017) „The most beautiful profession in the world…“ In memoriam Klaus Kalmring (1931-2015). J Comp Physiol A 203:91-97. doi: 10.1007/s00359-016-1141-9.

95. Ruedenauer FA, Leonhardt SD, Schmalz F, **Rössler W**, Strube-Bloss MF (2017) Separation of different pollen types by chemotactile sensing in *Bombus terrestris*. J Exp Biol 220:1435-1442. doi: 10.1242/jeb.153122

96. Markert SM, Bauer V, Muenz TS, Jones N, Helmprobst F, Britz S, Sauer M, **Rössler W**, Engstler M, Stigloher C (2017). 3D subcellular localization with super-resolution array tomography on ultrathin sections of various species. Methods in Cell Biology 149:21-47 doi.org/10.1016/bs.mcb.2017.03.004

97. Thamm M, Scholl C, Reim T, Grübel K, Möller K, **Rössler W**, Scheiner R. (2017) Neuronal distribution of tyramine and the tyramine receptor AmTAR1 in the honeybee brain. J Comp Neurol 525:2615-2631. doi: 10.1002/cne.24228

98. Fleischmann P, Grob R, Wehner R, **Rössler W** (2017) Species-specific differences in the fine structure of learning-walk elements in *Cataglyphis* ants. J Exp Biol 220:2426-2435. doi: 10.1242/jeb.158147

99. Yilmaz A, Dyer A, **Rössler W**, Spaethe J (2017) Innate colour preference, individual learning and memory retention in the ant *Camponotus blandus.* J Exp Biol 220, 3315-3326 doi:10.1242/jeb.158501. *Commented by Kathryn Knight in Inside JEB of same issue*.

100. **Rössler W**, Spaethe J, Groh C (2017) Pitfalls of using confocal-microscopy based automated quantification of synaptic complexes in honeybee mushroom bodies (response to Peng and Yang 2016). Scientific Reports 7:9786. doi: 10.1038/s41598-017-09967-8

101. Grob R, Fleischmann PN, Grübel K, Wehner R, **Rössler W** (2017) The role of celestial compass information in *Cataglyphis* ants during learning walks and for neuroplasticity in the central complex and mushroom bodies. Front Behav Neurosci 11:226. doi: 10.3389/fnbeh.2017.00226

102. Kropf J, **Rössler W** (2018) *In-situ* recording of ionic currents in projection neurons and Kenyon cells in the olfactory pathway of the honeybee. PLoS ONE 13(1): e0191425. doi.org/10.1371/journal.pone.0191425.

103. Strube-Bloss M, **Rössler W** (2018) Multimodal integration and stimulus categorization in putative mushroom body output neurons of the honeybee. Royal Society Open Science 5:171785. http://dx.doi.org/10.1098/rsos.171785

104. Fleischmann PN, Grob R, Müller VL, Wehner R, **Rössler W** (2018) The geomagnetic field is a compass cue in *Cataglyphis* ant navigation. Current Biology 28:1440-1444. https://doi.org/10.1016/j.cub.2018.03.043

105. Fleischmann PN, **Rössler W**, Wehner R (2018) Early foraging life: spatial and temporal aspects of landmark learning in the ant *Cataglyphis noda.* J Comp Physiol A 204:579-592. https://doi.org/10.1007/s00359-018-1260-6

106. Sommerlandt FMJ, Brockmann A, **Rössler W**, Spaethe J (2019) Immediate early genes in social insects: a tool to identify brain regions involved in complex behaviors and molecular processes underlying neuroplasticity. Cellular and Molecular Life Sciences 76:637–651 doi.org/10.1007/s00018-018-2948-z

107. **Rössler W** (2019) Neuroplasticity in desert ants (Hymenoptera: Formicidae) – importance for the ontogeny of navigation. Myrmecol News 29:1-20. doi: 10.25849/myrmecol.news_029:00.
- with (Re)Review by C. Buehlmann (2019) Fascinating navigational skills in ants Myrmecology News Blog. (Re)Review. https://blog.myrmecologicalnews.org/2019/01/09/fascinating-navigational-skills-in-ants/

108. **Rössler W** (2019) Studying the ontogeny of navigational behavior in desert ants. Myrmecology News Blog. Photoblog. https://blog.myrmecologicalnews.org/2019/01/09/fascinating-navigational-skills-in-ants/

109. Yilmaz A, Grübel K, Spaethe J, **Rössler W** (2019) Distributed plasticity in ant visual pathways following color learning. Proc Roy Soc B 286: 20182813. doi: http://dx.doi.org/10.1098/rspb.2018.2813

110. Grob R, Fleischmann PN, **Rössler W** (2019) Learning to navigate – how desert ants

calibrate their compass systems. Neuroforum 25 (2):109-120 doi: 10.1515/nf-2018-0011. with cover

111. Kraft N, Spaethe J, **Rössler W,** Groh C (2019) Neuronal plasticity in the mushroom-body calyx of bumble bee workers during early adult development. Dev Neurobiol 79:287-302. doi: 10.1002/dneu.22678

112. Becker MC, **Rössler W**, Strube-Bloss MF (2019) UV-light perception is modulated by the odour element of an olfactory-visual compound in restrained honeybees. J Exp Biol 222, jeb201483. doi:10.1242/jeb.201483.

113. Gadenne C, Groh C, Grübel K, Joschinski J, Krauss J, Krieger J, **Rössler W**, Anton S (2019) Neuroanatomical correlates of mobility: sensory brain centres are bigger in winged than in wingless parthenogenetic pea aphid females. Arthropod Structure & Dev 52, 100883. https://doi.org/10.1016/j.asd.2019.100883

114. Groh C, **Rössler W** (2020) Analysis of Synaptic Microcircuits in the Mushroom Bodies of the Honeybee. Insects 11(1), 43. https://doi.org/10.3390/insects11010043. with cover.

115. Fleischmann P, Grob R, **Rössler W** (2020) Kompass im Kopf. Biologie in unserer Zeit 50, 100-109. https://doi.org/10.1002/biuz.202010699. with cover

116. Habenstein J, Amini E, Grübel K, el Jundi B, **Rössler W** (2020) The brain of Cataglyphis ants: neuronal organization and visual projections, *bioRxiv*, Cold Spring Harbor Laboratory. https://doi.org/10.1101/2020.02.19.954461

117. Habenstein J, Amini E, Grübel K, el Jundi B, **Rössler W** (2020) The brain of Cataglyphis ants: neuronal organization and visual projections. J Comp Neurol 528:3479–3506. https://doi.org/10.1002/cne.24934

118. Fleischmann P, Grob R, **Rössler W (**2020) Magnetoreception in Hymenoptera: Importance for Navigation. Animal Cognition 23:1051-1061. https://doi.org/10.1007/s10071-020-01431-x

119. Grob R, Tritscher C, Grübel K, Stigloher C, Groh C, Fleischmann PN, **Rössler W** (2021) Johnston's organ and its central projections in *Cataglyphis* desert ants. J Comp 529:2138–2155. https://onlinelibrary.wiley.com/doi/abs/10.1002/cne.25077
with cover: https://doi.org/10.1002/cne.25146

120. Anton S, **Rössler W** (2021) Plasticity and modulation of olfactory circuits in insects. Cell Tissue Research 383: 149-164. http://dx.doi.org/10.1007/s00441-020-03329-z

121. Habenstein J, Schmitt F, Liessem S, Ly A, Trede D, Wegener C, Predel R, **Rössler W**, Neupert S (2021) Transcriptomic, peptidomic and mass spectrometry imaging analysis of the brain in the ant *Cataglyphis nodus.* J Neurochemistry, e*arly view.*
https://doi.org/10.1111/jnc.15346

122. Hurd PJ, Grübel K, Wojciechowski M, Maleszka R, **Rössler W** (2021) Novel structure in the nuclei of honey bee brain neurons revealed by immunostaining. Scientific Reports 11 (6852) https://doi.org/10.1038/s41598-021-86078-5

123. Beetz MJ, Kraus C, Franzke M, Dreyer D, Strube-Bloss MF, **Rössler W**, Warrant EJ, Merlin C, el Jundi B (2021) State-dependent egocentric and allocentric heading representation in the monarch butterfly brain. bioRxiv, Cold Spring Harbor Laboratory
https://doi.org/10.1101/2021.04.07.438824

124. Habenstein J, Thamm M, **Rössler W** (2021) Neuropeptides as potential modulators of behavioral transitions in the ant *Cataglyphis nodus*. J Comp Neurol 529:3155–3170. https://doi.org/10.1002/cne.25166

125. Grob R, Heinig N, Grübel K, Rössler W, Fleischmann PN (2021) Sex- and caste-specific brain adaptations related to spatial orientation in *Cataglyphis* ants. *Submitted (05/21)*

REVIEWED (R) AND NON-PEER-REVIEWED (N) BOOK CHAPTERS

1. *(R)* Kalmring K, Reitboeck HJ, **Rössler W**, Schröder J, Bailey WJ (1990) Synchronous activity in neuronal assemblies as a coding principle for pattern recognition in sensory systems of insects. In: Trends in biological Cybernetics, 1. MENON, J. (Ed.), Research Trends, Council of Scientific Research Integration, Trivandrum, pp. 45-64

2. *(R)* Kalmring K, **Rössler W**, Schröder J, Stiedl O, Bickmeyer U, Bailey WJ (1990) Importance of tooth impact rate in acoustic communication in bushcrickets. In: Sensory systems and communication in arthropods. GRIBAKIN, F.G., WIESE, K. and POPOV, A.V. (Eds.), Birkhäuser Verlag Basel, Boston, Berlin, pp. 248-253

3. *(R)* Kalmring K, Ebendt R, Ahi J, Hellweg J, Young D, Halex H, Lakes R, **Rössler W**, Schröder J (1990) Comparative investigation on the morphology and physiology of the auditory receptor organs of seven species of bushcrickets. In: Sensory systems and communication in arthropods. GRIBAKIN, F.G., WIESE, K. and POPOV, A.V. (Eds.), Birkhäuser Verlag Basel, Boston, Berlin, pp. 241-247

4. *(R)* **Rössler W**, Stiedl O, Nebeling B (1993) Song discrimination in Tettigoniids: Neurophysiological investigations and phonotactic experiments. Mitt Dtsch Ges Allg Ang Ent 8:721-725

5. *(R)* Kalmring K, **Rössler W**, Ahi J, Ebendt R, Lakes R (1993) The auditory receptor organs in the forelegs of tettigoniids: Physiology, receptor cell arrangement, and morphology of the organs in Psorodonotus illyricus (P.i.), Decticus albifrons (D.a.), and Decticus verrucivorus (D.v.), (Orthoptera, Tettigoniidae). Mitt Dtsch Ges Allg Ang Ent 8: 663-668

6. *(N)* Hildebrand JG, Christensen TA, Heinbockel T, Roche-King J, Mechaber W, **Rössler W**, Selchow K, Shields VDC (1999) The olfactory neurobiology of host- and mate-attraction in moths.In: Proceedings of the 27th Göttingen Neurobiology Conference. ELSNER, N. and EYSEL, U. (Hrsg.). Georg Thieme Verlag, Stuttgart, New York:pp56-67.

7. *(N)* **Rössler W**, Lakes-Harlan R (1999) Plasticity in the insect nervous system.In: Proceedings of the 27th Göttingen Neurobiology Conference. ELSNER, N. and EYSEL, U. (Hrsg.). Georg Thieme Verlag, Stuttgart, New York:pp 426-434.

8. *(N)* Kalmring K, Sickmann T, Jatho M, **Rössler W**, Hoffmann E, Unrast C, Bangert M, Nebeling B (2002) The auditory-vbratory sensory system in bushcrickets (Tettigoniidae, Ensifera, Orthoptera) I. Comparison of morphology, development and physiology. In: Environmental Signal Processing and Adaptation. HELDMAIER G and WERNER D (Hrsg.). Springer-Verlag, Berlin, Heidelberg, New York: pp 169-204

9. *(R)* **Rössler W**, Jatho M, Kalmring K (2006) The Auditory-Vibratory Sensory System in Bushcrickets (Tettigoniidae, Ensifera, Orthoptera). In: Insect Sounds and Communication: Physiology, Behaviour, Ecology and Evolution. Drosopoulos S and Claridge M (Eds.). CRC Press: pp 35-69.

10. *(R)* Kleineidam CJ, **Rössler W** (2009) Adaptations of the olfactory system of social Hymenoptera. In: Organization of Insect Societies (Gadau J, Fewell J, eds): Harvard University Press, Cambridge, MA. pp. 195-219.

11. *(R)* **Rössler W**, Groh C (2012) Plasticity of synaptic microcircuits in the mushroom-body calyx of the honeybee. In: “Honeybee Neurobiology and Behavior – a tribute to Randolf Menzel”, Eds. Eisenhardt D, Girufa M, Galizia CG., Springer Verlag. pp 141-153

12. *(R)* Wehner R, **Rössler W** (2013) Bounded plasticity in the desert ant’s navigational toolkit.

In: “Invertebrate Learning and Memory” (Eds. Menzel R, Benjamin PR) Academic Press Elsevier. pp. 514-529.

13. *(N)* **Rössler W** (2014) Soziale Insekten: kollektive Intelligenz eines Superorganismus. In: "Blickpunkt Intelligenz. Ein Erfolgsmodell der Evolution?" Eds: Eva Maria Herzog, Hans-Christian Bauer & Karl Peter Überriegler. Verlag: Books on Demand, Norderstedt., pp 27-46.

TEXTBOOKS

1. Heldmaier G, Neuweiler G, **Rössler W** (2013) ***Vergleichende Tierphysiologie*** *(Comparative Animal Physiology)**,*** Textbook, 2nd edition *Springer Verlag (1178 pages).*

THESES

Diploma Thesis (1987) Vergleichende Untersuchungen zur synaptischen Übertragung im akustischen Neuropilem des Prothorakalganglions verschiedener Laubheuschrecken; Stromquellendichte-Analysen bei Reizung mit Kunstlauten und Vibration. (*Comparative investigations on the synaptic transmission in the auditory neuropil of the prothroracic ganglion of different species of bush cricket: Current-Source-Density analyses and stimulation with airborne sound and vibration.*) University of Marburg.

Doktoral Thesis (1990): Vergleichende Untersuchungen zur neuronalen Kodierung komplexer artspezifischer Signalparameter in der Hör- und Vibrationsbahn von Laubheuschrecken; Mehrkanalelektroden-Ableitungen und Stromquellendichte-Analysen. (*Comparative investigations on neuronal coding of complex species-specific sound parameters in the auditory-vibratory pathway of bush crickets; multi-channel recordings and current-source-density analyses.*) University of Marburg.

Habilitation (1994): Untersuchungen zur akustischen Kommunikation und zur Funktion neurosekretorischer Zellen bei Heuschrecken. (*Investigations on auditory communication and the function of neurosecretory cells in bush crickets and locusts*). University of Marburg.