

**Why do spiders have such sensitive vibration sensors? What evidence is there to suggest that the tuning of these sensors are adaptive?**

I'm expecting an outline of the various ways that spiders sense using vibrations, and their use in their behaviour and ecology. Then go on to look into detail in the literature on the frequency and sensitivity of these sensors and how it applies to their application. Please **find primary literature examples from the references in the book or review.**

For this tutorial we will meet at Jesus College lodge.

**Reading list**

Text books/reviews:

Barth, F. (2002), *A spider's world: Senses and behaviour*. Springer, Berlin.

Brunetta, L. and Craig, C. L., (2010), *Spider silk*. Yale University Press, New Haven.

Foelix, R. F., (1996), *Biology of spiders*, 3<sup>rd</sup> edition. OUP, Oxford.

Vollrath, F., and Selden, P., (2007), The role of behaviour in the evolution of spiders, silks and webs, *Annual review of ecology, evolution and systematics*, 38, pp. 819-846.

Relevant articles:

Klarner, D. And Barth, F. G. (1982), Vibratory signals and prey capture in the orb-weaving spiders (*Zygiella x-notata*, *Nephila clavipes*; Araneidae), *J comp Physiol*, 148, pp. 445-455.

Kotiaho, J., *et al.*, (1996), Sexual selection in a wolf spider: male drumming activity, body size, and viability, *Evolution*, 50 (5), pp. 1977-1981.

Landolfi, M. A. And Barth, F. G. (1996), Vibrations in the orb web of the spider *Nephila clavipes*: cue for discrimination and orientation, *J Comp Physiol A*, 179, pp. 493:508.

Masters W. M. And Markl, H. 1981, Vibration signal transmission in spider orb webs, *Science*, 213, pp. 363-365.

Vollrath, F., (1979), Vibrations: Their signal function for a spider kleptoparasite, *Science*, 205 (4411), pp. 1149-1151.

Walcott, C. and Van der Kloot, W. G. (1959), The physiology of the spider vibration receptor, *Journal of Experimental Biology*, 141 (2), pp. 191-243.