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**Microacoustics: maintaining an ecologically relevant scale in insect bioacoustics**

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A major challenge when studying an organism is to maintain its environment and context as reliably as possible. When looking at sensory systems it is crucial not to assume the animal's perception the same as ours and instead measure and mimic more accurately the natural stimuli driving the sensors. In insect bioacoustics the usual practice in playback and recording techniques overlooks differences in scale and context in which the organism's sensory system evolved. Here we present an approach to emit and record low-amplitude near-field sound, while maintaining an ecologically relevant scale, in *Drosophila melanogaster*. To mimic the effect of male courtship song on the female sound receiver (antennae) a mechanical microwing was constructed simulating, in power and geometry, particle velocity signals emitted by singing males, with its efficacy tested by behavioural assay. Development of a miniature particle velocity microphone was also initiated for recording signals in the fly's immediate vicinity (<2mm) to elucidate the magnitude, temporal and radiation characteristics of the produced sound-field.