Sex, lies and rock'n'roll: signal function and evolution in spider webs

Anne Wignall [*1]

[1] Institute of Natural and Mathematical Sciences, Massey University, Albany, Auckland 0745, New Zealand

The physical environment in which communication occurs heavily influences the form and function of animal signals. A striking example of this is found in web-building spiders. The *Umwelt* of web-building spiders is dominated by web vibrations. The spider can gain information about the presence of potential prey, conspecifics and even predators by interpreting the vibrations travelling through the silk. However, relying on web vibrations to provide information about the world can also create major constraints on signal form. For example, potential mates may be misidentified as prey, and attacked, if their vibratory signals are not sufficiently differentiated from the vibrations generated by prey. Predators can also exploit the reliance of web-building spiders on vibratory information by generating deceitful signals that trick the spider into mis-identifying their presence. In this talk, I will outline the vibratory behaviour of prey in spider webs, and how assassin bugs exploit these vibrations to lure their spider prey within range. The unique challenges faced by male web-building spiders will also be described, and how male courtship signaling has been shaped by the behaviour of prey in spider webs. Web-building spiders are an extraordinary model system with which to study signal evolution and communication dynamics.