Fig. S1. Morphology of the cross section of a nitrile butadiene-rubber latex sample characterized by cryo and room temperature AFM. (a) Topographical AFM image of an epoxy embedded latex stripe, which has been mounted in the cryo-chamber of SNOTRA, cryo-sectioned and immediately scanned at -120°C. (b) The same sample was warmed up to room temperature and examined using the same AFM adjustment parameters and the same tuning fork sensor. The image was taken in the close proximity of the area scanned under cryo conditions (to avoid visualizing features of the latex which may already be effected after cryo scanning). Scale bars in (a) and (b) are 500 nm, the topographical variation in (a) is 27 nm, and 48 nm in (b).
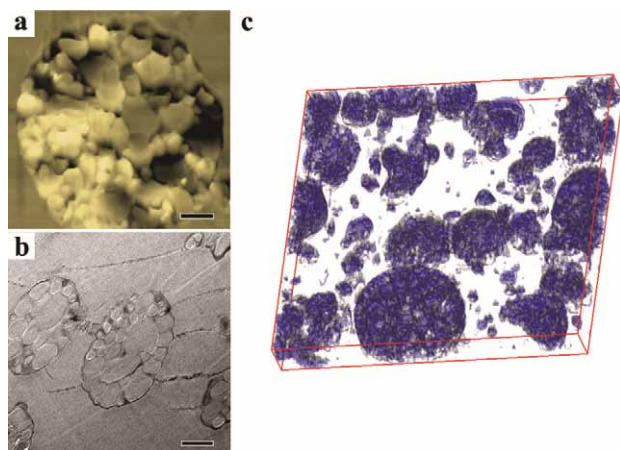
Fig. S2. 2D and 3D AFM and TEM images of acrylonitrile-butadiene-styrene (ABS) copolymer obtained at room temperature. (a) AFM topographical image of ABS block face, which was sectioned and scanned at room temperature. (b) TEM bright field image of the ultrathin section of ABS, which was sectioned and observed at room temperature. It is obvious that the section has been compressed during section preparation in contrast to block face, which still contained round butadiene inclusions. (c) 3D structure of ABS ($13.5 \times 13.0 \times 1.5$ µm3, 15 sections, section thickness 100 nm). Scale bars in (a) and (b) are 500 nm, the topographical variation in (b) is 250 nm.
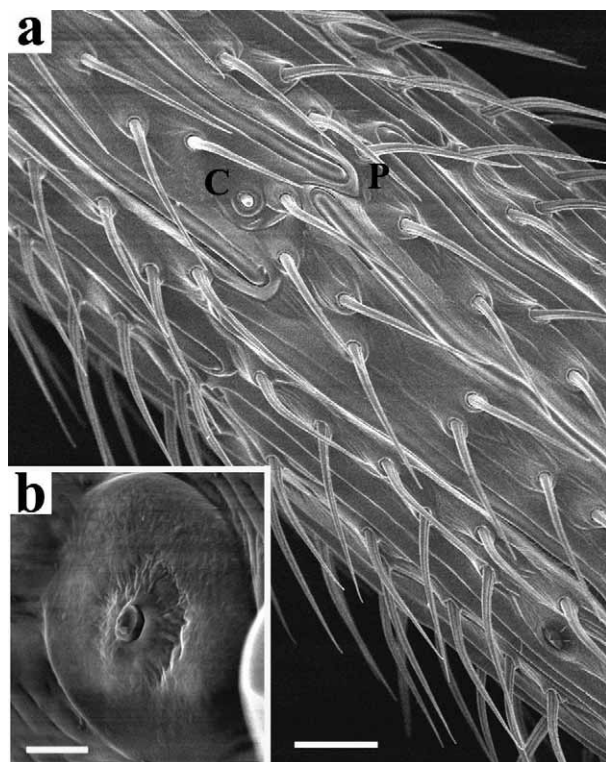
Fig. S3. Antenna of a parasitic wasp Cotesia glomerata. Secondary electron SEM images. (a) Overview of one of the central segments of antenna (P - sensilla Placodea, C - sensilla Coeloconic) and (b) Sensilla Coeloconica at higher magnification. Scale bars in (a) is 20 μm and in (b) is 1 μm.
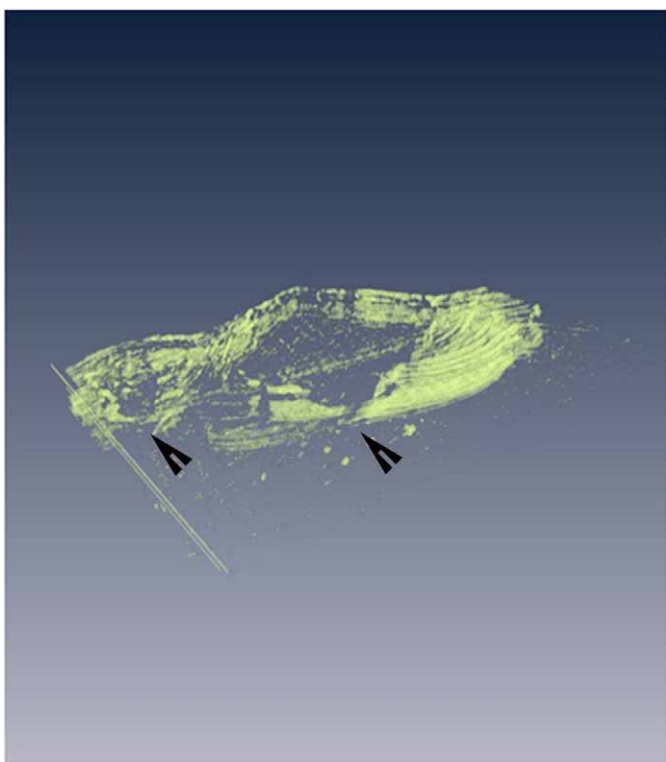
Fig. S4. A 3D model of the chitin organization of *Placodea* and *Coeloconica* sensillas. The black arrows indicate the protrusion cavity of both sensillas