

Hierarchical architecture of spider attachment setae reconstructed from scanning nanofocus X-ray diffraction data

Clemens F. Schaber¹, Silja Flenner^{2,3}, Anja Glisovic³, Igor Krasnov³, Martin Rosenthal⁴, Hergen Stieglitz^{2,3}, Christina Krywka², Manfred Burghammer⁴, Martin Müller^{2,3}, Stanislav N. Gorb¹

¹ Functional Morphology and Biomechanics, Zoological Institute, Kiel University, 24098 Kiel, Germany

² Helmholtz-Zentrum Geesthacht, Postfach 1160, 21494 Geesthacht, Germany

³ Institute of Experimental and Applied Physics, Kiel University, 24098 Kiel, Germany

⁴ European Synchrotron Radiation Facility (ESRF), CS 40220, 38043 Grenoble Cedex 9, France

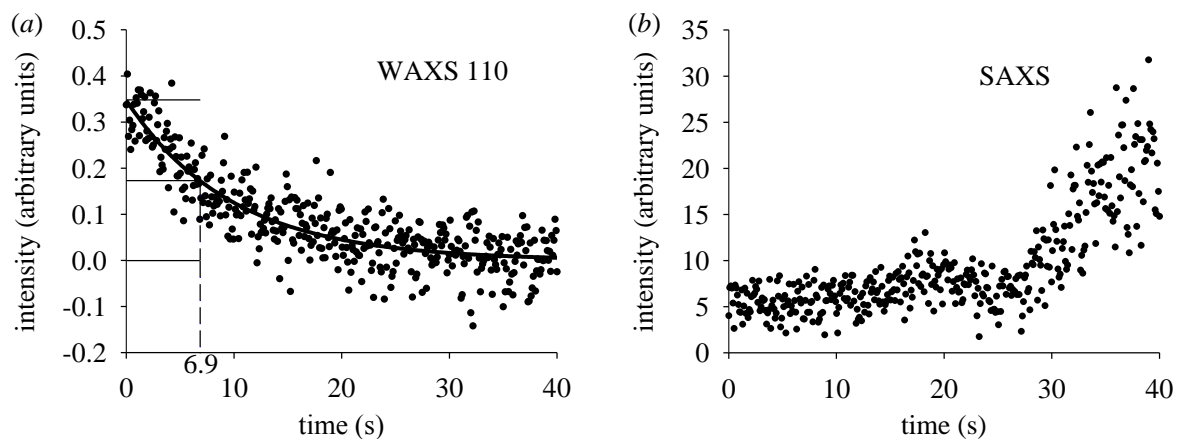


Figure S1. Modification of the X-ray diffraction signal intensity at 400-fold successive exposure by 0.1 s of an attachment hair to the focused X-ray beam at the ESRF. (a) Decrease of the equatorial 110 chitin wide-angle diffraction reflection. The exponential fit yields a half-life of signal intensity of 6.9 s exposure as indicated by the dashed line. The data points are shifted to the zero line of the asymptotic line fit. Negative intensity values are caused by subtraction of the background signal. (b) Increase of the SAXS signal intensity.