Electronic Supplementary Information (ESI)

Synchrotron macro ATR-FTIR microspectroscopy for high-resolution chemical mapping of single cells

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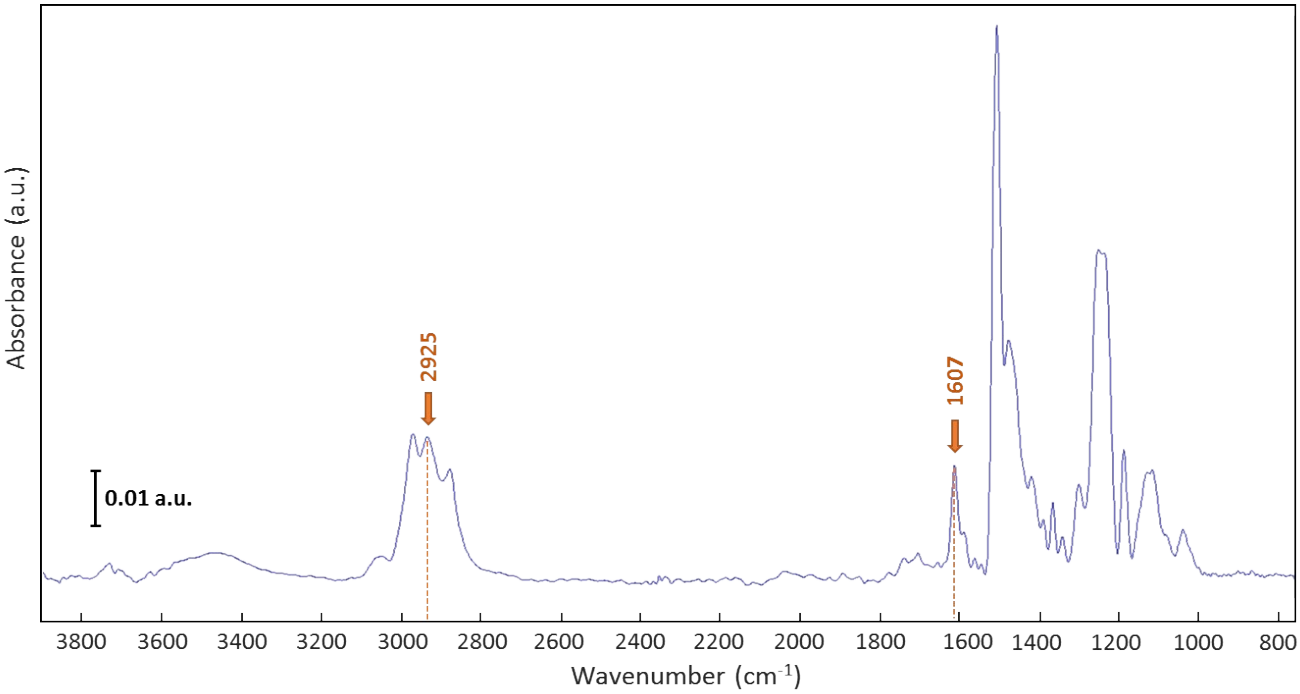

Figure S1. Synchrotron macro ATR-FTIR spectrum of the photoresist polymer used for evaluating the experimental spatial resolution of the system based on normalised absorbance at 2925 cm^{-1} for ν_{as}(C–H) stretching vibration of methylene groups (see main text Fig. 2). The normalised absorbance at 1607 cm^{-1} characteristic of ν(C–C) stretching mode of aromatic ring in the photoresist polymer was used for the calculation of the spatial resolution in the fingerprint region, and the measured spatial resolution is presented in Fig. S2.

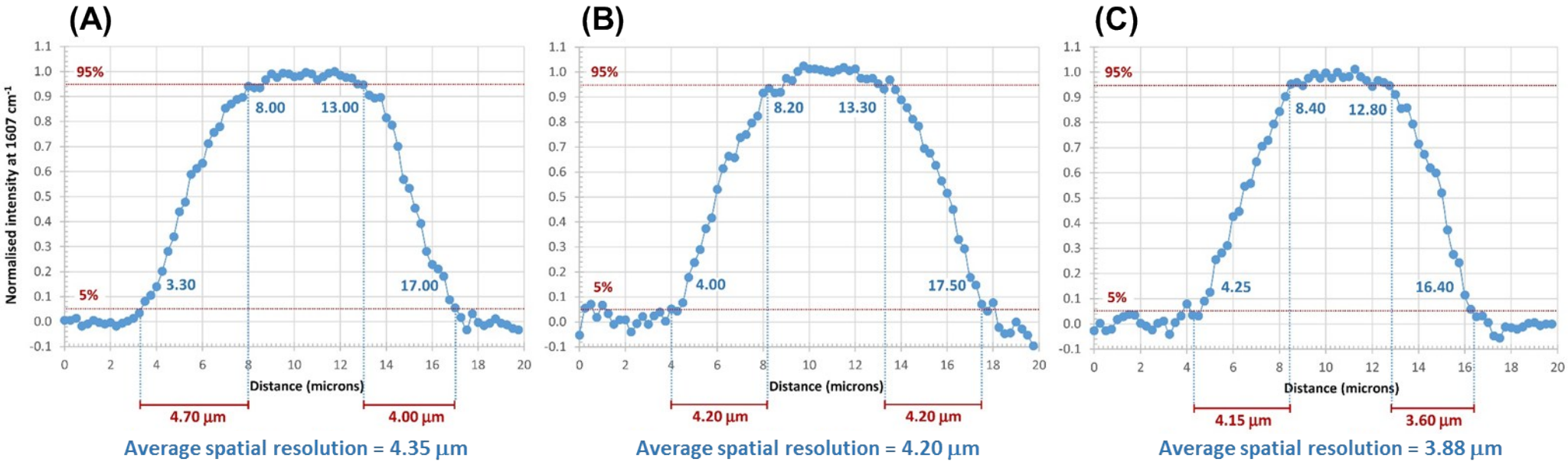

Figure S2. Spatial resolution evaluated by 5%–95% line scan approach according to the Rayleigh criterion, as presented in Fig. 2, but using normalised absorbance at 1607 cm^{-1}, in order to assess the spatial resolution of the system in the fingerprint region. Three average values of spatial resolution displayed from left to right were calculated based on spectral datasets of the photoresist polymer bar that were acquired using projected apertures of 3.13 µm (A), 2.50 µm (B) and 1.88 µm (C), respectively.

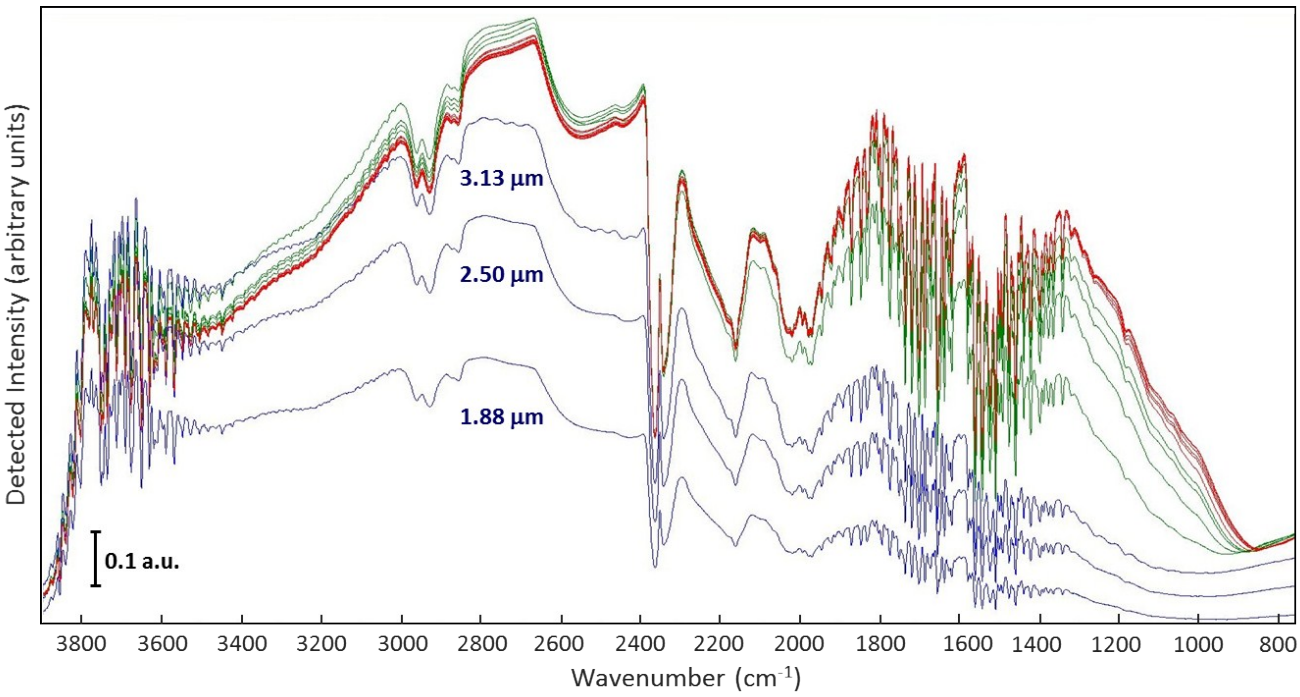

Figure S3. Single beam spectra observed at the centre of the Ge hemispherical crystal with a 250 µm diameter Ge ATR tip, using an open beam (red), large apertures (green), and reducing aperture size (blue) to produce smaller projected aperture sizes of 3.13 µm, 2.50 µm and 1.88 µm, respectively.