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### Probing temperature- and solvent-dependent protein dynamics using terahertz time-domain spectroscopy

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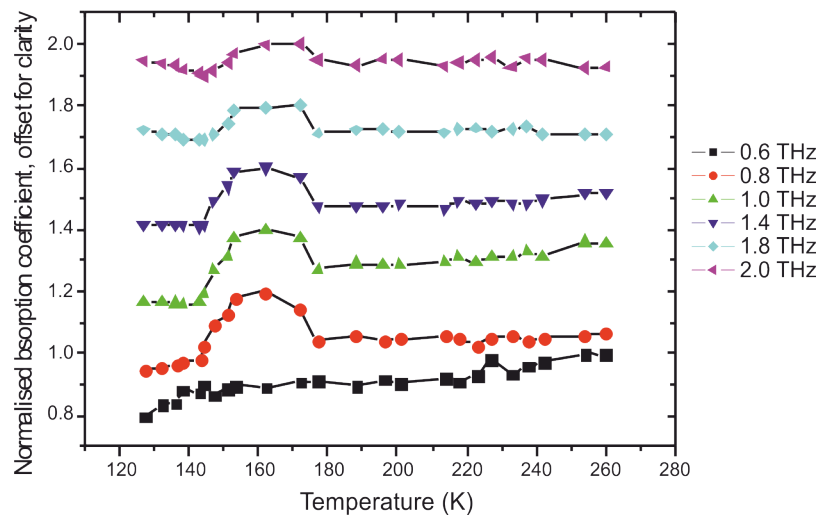
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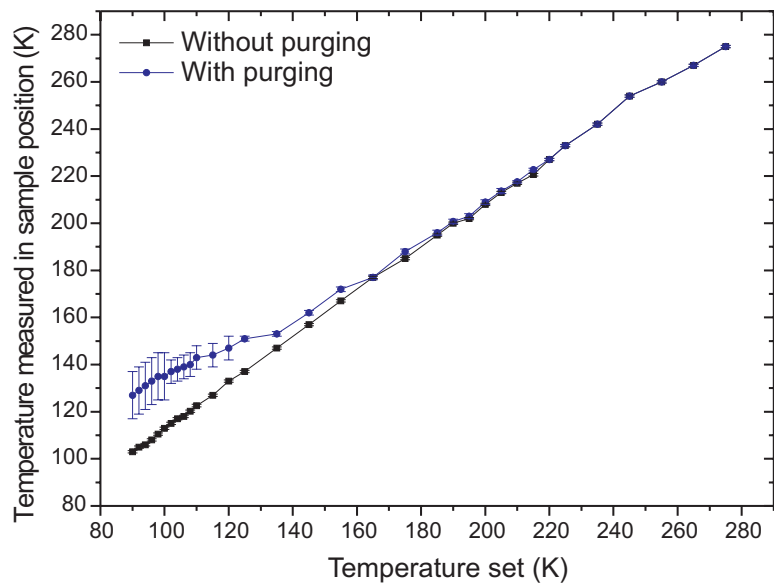
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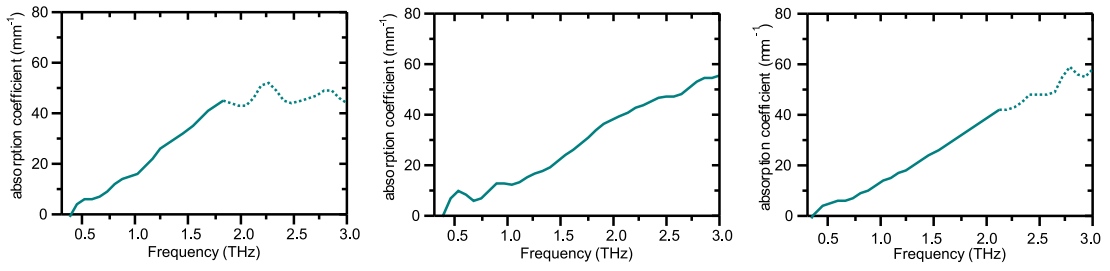
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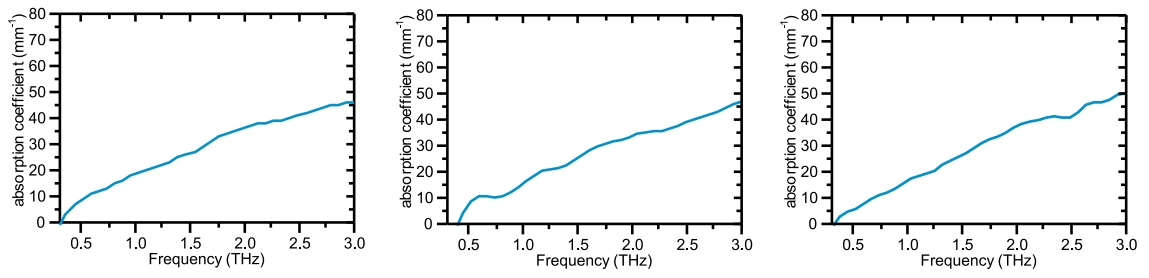
Supplementary Figure 1 (S1): Variable temperature measurement of a cryo-protected crystal of HEWL from 127 – 260 K showing the decrease in the normalised absorption coefficient after ~160 K, attributed to the removal of solvent from the crystal by the dry nitrogen cryo-stream. All data presented in this work are therefore shown up to the peak value of absorption coefficient.



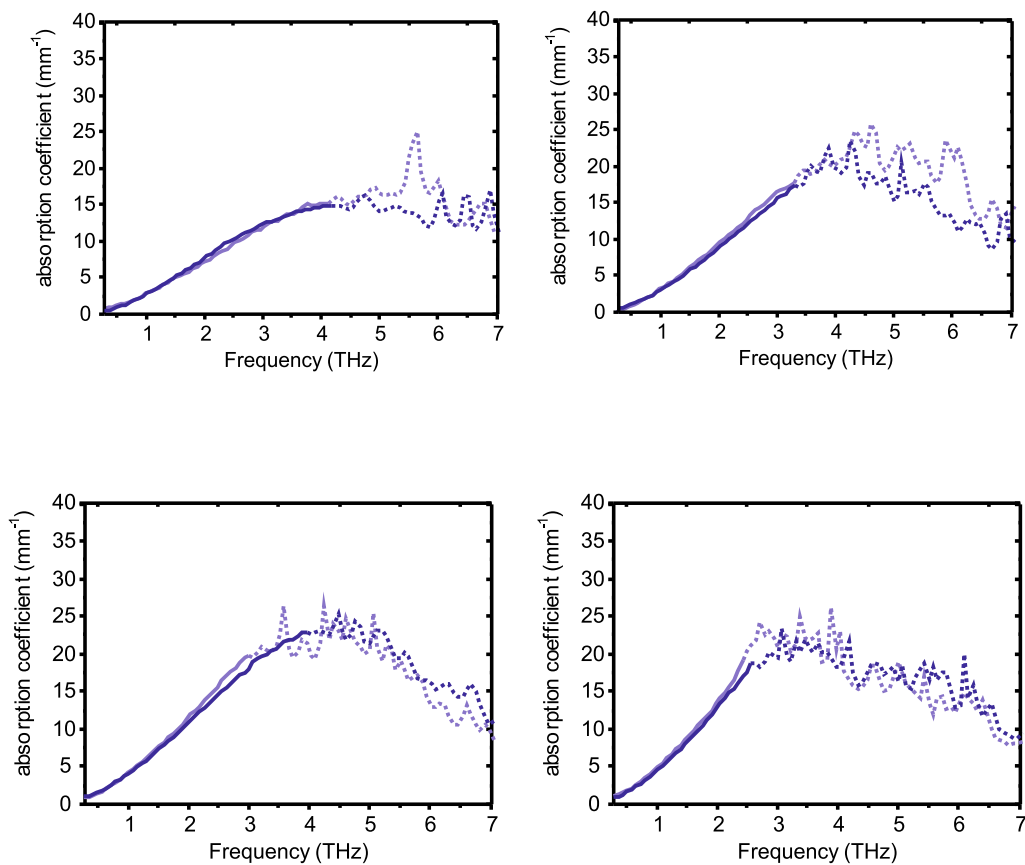
Supplementary Figure 2 (S2): Set temperature plotted against measured temperature, with and without nitrogen gas purging of the THz-TDS system. The air flow created by the purging reduced the accuracy of the cryo-stream at the sample temperature by up to  $\pm 10$  K



Supplementary Figure 3 (S3): THz spectra of three cryo-protected HEWL crystals at  $\sim 127$  K. Dotted lines indicate noise, where the absorption coefficient has reached above the maximum detectable absorption coefficient for a given sample.



Supplementary Figure 4 (S4): THz spectra of three non-cryo-protected HEWL crystals at  $\sim 127$  K



Supplementary Figure 5 (S5): THz spectra of pressed pellet samples of HEWL going up in concentration of HEWL: 25% (top left), 50% (top right), 75% (bottom left) and 100% (bottom right). Each trace represents three averaged spectra at 4.1 K, of an individual sample. Dotted lines indicate noise, where the absorption coefficient has reached above the maximum detectable absorption coefficient for a given sample.