**Supplementary dataset for Coincident Molecular Auxeticity and Negative Order Parameter in a Liquid Crystal Elastomer**

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Thank you for accessing this supplementary dataset for our paper, we hope you find it useful!

Each folder of the dataset includes the data files and plotting files from which the graphs are created. The plotting files run in gnuplot (freely available at <http://gnuplot.info/>) and you can open them in any text editor to view/edit the code. Also contained in the folder are the raw and full resolution SEM and AFM files from Figs 2 and 3 and inkscape svg files which contain the vector formats of the final figures.

If you would like to see the absolute raw data files (i.e. photographs of samples at each deformation step via white light/polarising microscopy and stress/strain data files) or the python analysis codes (or have any other questions) then please get in contact with either Devesh Mistry (up to date contact details at <https://orcid.org/0000-0003-0012-6781>) or Helen Gleeson (H.F.Gleeson@Leeds.ac.uk).