# We report polarised Raman spectroscopy and dielectric properties of an asymmetric bent-core compound derived from 3-hydroxybenzoic acid with a long terminal chain at one end and a nitro group at the other. This data file includes 2 sections: 1) polarized Raman data: including the source data (polarized Raman spectra for the liquid crystal materials deduced at various temperatures and for a series of orientation angles with respect to the input and output polarisation direction of the laser light) and the depolarization Raman intensities data as Excel files. 2) Dielectric spectroscopy data: including the perpendicular and parallel component of dielectric permittivity (both real and imaginary part) as function of temperature. 3) Plots and their data on the relevant paper “*Observing the emergence of phase biaxiality in a polar smectic A system via polarised Raman spectroscopy*” (DOI: 10.1039/c6tc04572c)

Here is the check list of the data:

1. ***PRS source dataset (e.g.PRS\_147)*:** it includes polarized Raman spectra for the liquid crystal materials deduced at various temperatures and for a series of orientation angles with respect to the input and output polarisation direction of the laser light.

The number (e.g.147) indicates the measuring temperature in Celsius degree. There are 74 individual files in the folder for each temperature and they are the Raman spectra for certain rotation angle. In each file, the first column indicates the Raman shift in cm-1 while the second column is Raman intensity. In addition, number 1-37 represent the Raman spectra collected with parallel geometry (analyser direction agrees the laser polarization direction) at rotation angle from 0o to 360o. Number 38-74 are the Raman spectra with perpendicular geometry (analyser direction is perpendicular to the laser polarization direction) at rotation angle from 360o back to 0o.

1. ***PRS depolarization ratio data*:** this is depolarization Raman intensities data as Excel file. The first column is the rotation angle while the rest columns are the depolarization ratio value at different temperatures (in Celsius degree).
2. ***Dielectric data set*:**
   1. *Dielectric data from homeotropic (HT) aligned sample*: it reports parallel component of dielectric permittivity with both real and imaginary part.
   2. *Dielectric data from homogenous (HG) aligned sample*: it reports perpendicular component of dielectric permittivity with both real and imaginary part.

There are multiple data files in each folder which indicates the dielectric data at certain temperature. The temperature is shown in the file name (e.g. T\_1.15E\_2deg in the file name indicates the temperature is 115oC). In each file, the useful information are the first column (frequency in Hz) and last two columns (real and imaginary part of dielectric permittivity respectively)

1. ***Paper Plots*:** This folder includes all plots (in PDF) and some data (in Excel file) related to paper **“***Observing the emergence of phase biaxiality in a polar smectic A system via polarised Raman spectroscopy*” (DOI: 10.1039/c6tc04572c)