Molecular self-healing mechanisms between C_{60} -fullerene and anthracene unveiled by Raman and two-dimensional correlation spectroscopy

R. Geitner,^{*a*} J. Kötteritzsch,^{*b,c*} M. Siegmann,^{*a*} R. Fritzsch,^{*a*} T.W. Bocklitz,^{*a,d*} M. D. Hager,^{*b,c*} U. S. Schubert,^{*b,c*} S. Gräfe,^{*a*} B. Dietzek,^{*a,c,d*} M. Schmitt^{*a*} and J. Popp^{*a,c,d*}

^a Institute for Physical Chemistry and Abbe Center of Photonics, Friedrich Schiller University Jena, Helmholtzweg 4, 07743, Jena, Germany.

^b Laboratory for Organic and Macromolecular Chemistry (IOMC), Friedrich Schiller University Jena, Humboldtstr. 10, 07743, Jena, Germany.

^c Jena Center of Soft Matter (JCSM), Friedrich Schiller University Jena, Philosophenweg 7,07743, Jena, Germany.

^d Leibniz Institute for Photonic Technology (IPHT) Jena, Albert-Einstein-Str. 9, 07745, Jena, Germany. E-mail: juergen.popp@uni-jena.de



Figure S1: Synchronous 2D Raman correlation spectrum of **P1** between 25 and 80 °C (in steps of 5 °C) in the wavenumber region between 250 to 1600 cm⁻¹. The spectrum plotted at the top and the left is the reference mean Raman spectra for the examined temperature region. Red color indicates positive peaks, while blue shows negative ones.



Figure S2: Asynchronous 2D Raman correlation spectrum of **P1** between 25 and 80 °C (in steps of 5 °C) in the wavenumber region between 250 to 1600 cm^{-1} . The spectrum plotted at the top and the left is the reference mean Raman spectra for the examined temperature region. Red color indicates positive peaks, while blue shows negative ones.



Figure S3: Synchronous 2D moving window Raman correlation spectra of **P1** between 25 and 80 °C (in steps of 5 °C, window size: 20 °C) in the wavenumber region between 1555 to 1595 cm⁻¹. The spectra plotted at the top and the left are respective reference mean Raman spectra for the examined temperature region. Red color indicates positive peaks, while blue shows negative ones.