Supporting Information for:

Enhanced anhydrous proton conduction in materials based on 1*H*-imidazole/1*H*-1,2,3-triazole composites

Dipankar Basak, Craig Versek, Jacob A. Harvey, Scott Christensen, Jibben Hillen, Scott M. Auerbach, Mark T. Tuominen, and Dhandapani Venkataraman*

University of Massachusetts Amherst, 710 N Pleasant Street, Amherst, MA 01003

I. Differential Scanning Calorimetry (DSC)

Table T1. Transition temperatures (°C) and associated enthalpy changes (J/g) for different DOPhTz/DOPhIm composites determined by DSC. K: crystal; I: isotropic; K_1, K_2, K_3: $crystal_1$, $crystal_2$ and $crystal_3$, respectively.

Entry DOPhTz/DOPhIm	2^{nd} heating heating rate 10 °C/min	1^{st} cooling cooling rate 5 °C/min
100/0	K 138.71(150.6) I	I 130.73(153.4) K
87.5/12.5	K_1 105.8(9.83) K_2 133.83(74.22) I	I 126.9(87.76) K_2 93.53(11.49) K_1
75/25	K_1 107.14(28.46) K_2 128.67(48.06) I	I 120.2(69.78) K_2 96.24(32.8) K_1
66.7/33.3	K_1 64.73(1.54) K_2 105.55(28.64) K_3 122.38(15.42) I	I 113.98(43.81) K_3 95.56(42.27) K_2 58.49(1.55) K_1
50/50	K_1 64.68(1.61) K_2 105.9(99.05) I	I 94.86(98.59) K_2 58.52(2.08) K_1
33.3/66.7	K_1 64.17(2.31) K_2 105.22(102.3) I	I 89.52(102.2) K_2 57.3(2.06) K_1
25/75	K_1 65.49(3.16) K_2 105.61(50.21) K_3 118.1(0.75) I	I 100.63(31.15) K_3 94.19(47.36) K_2 60.79(3.36) K_1
12.5/87.5	K_1 65.84(4.83) K_2 102.95(23.83) K_3 126.45(50.47) I	I 112.5(72.43) K_3 85.66(22.85) K_2 61.34(4.29) K_1
0/100	K_1 64.87(4.77) K_2 131.31(71.55) I	I 119.32(72.32) K_2 59.81(4.15) K_1

II. Polarized Optical Microscopy (POM)

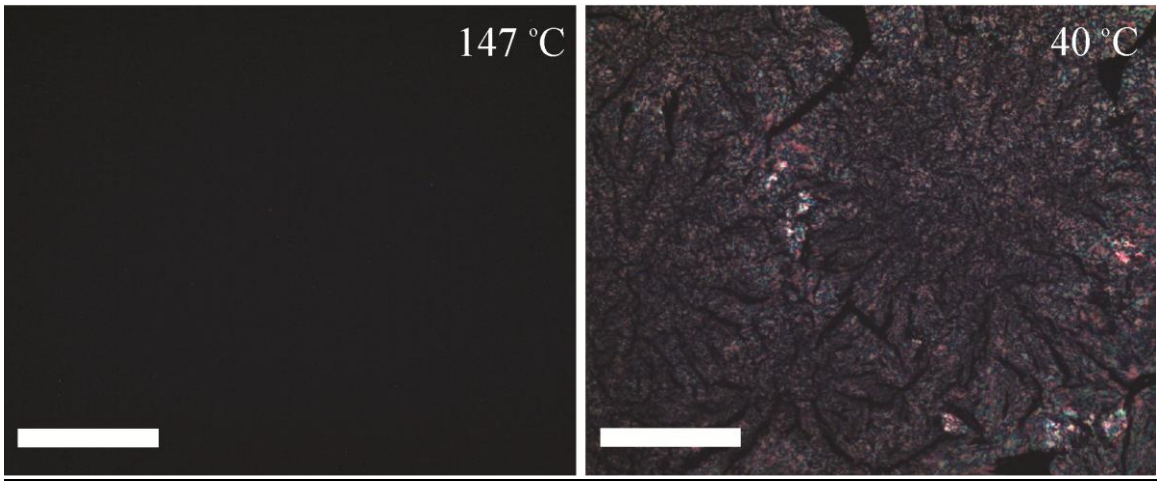

Fig. S1 POM for DOPhIm (**4),** scale bars 200 μm.

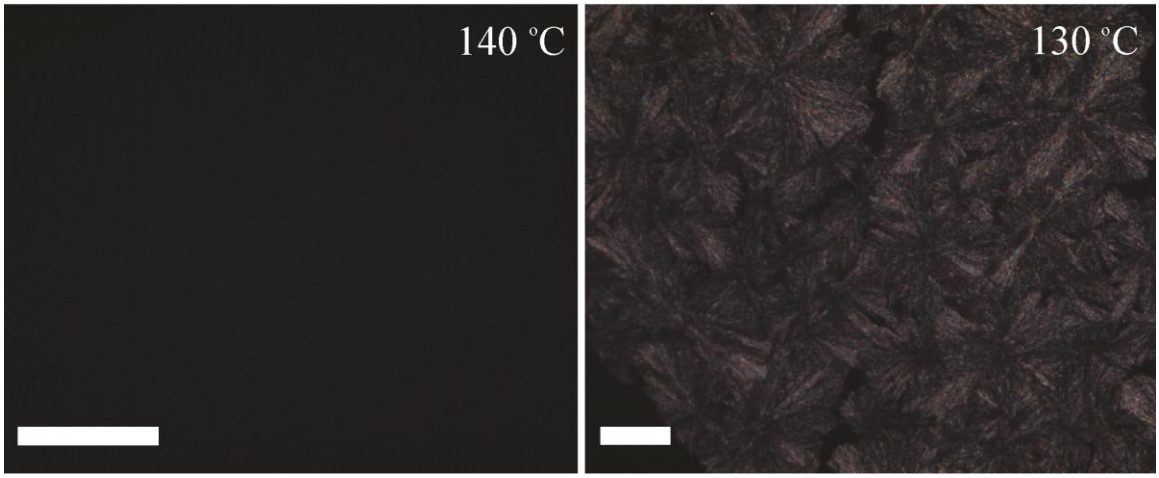

Fig. S2 POM for DOPhTz (**10),** scale bars 200 μm.

III. Powder X-ray Diffraction

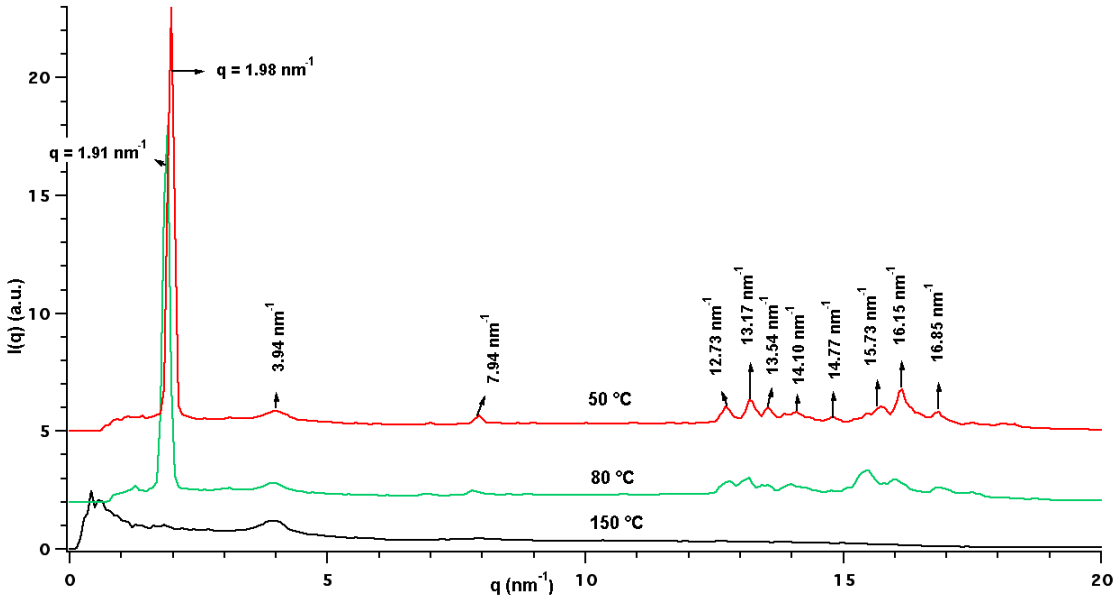

Fig. S3 Wide angle X-ray diffraction data for DOPhIm (**4**).

IV. NMR Spectra