Electronic Supplementary Material (ESI) for Dalton Transactions.

Electronic Supplementary Information

Nanostructured discotic Pd(II) metallomesogens as one-dimensional proton conductors

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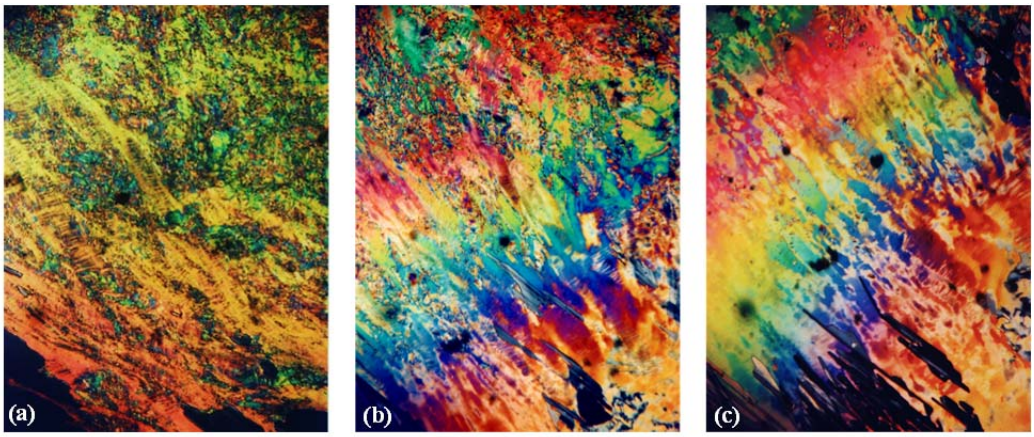

Fig. S1. POM microphotographs of the Col_h mesophase of $[Pd(pz^{R(8,8)iq})_2]$ **3** at **(a)** 215 ºC, **(b)** 291 ºC and **(c)** 330 ºC on heating.

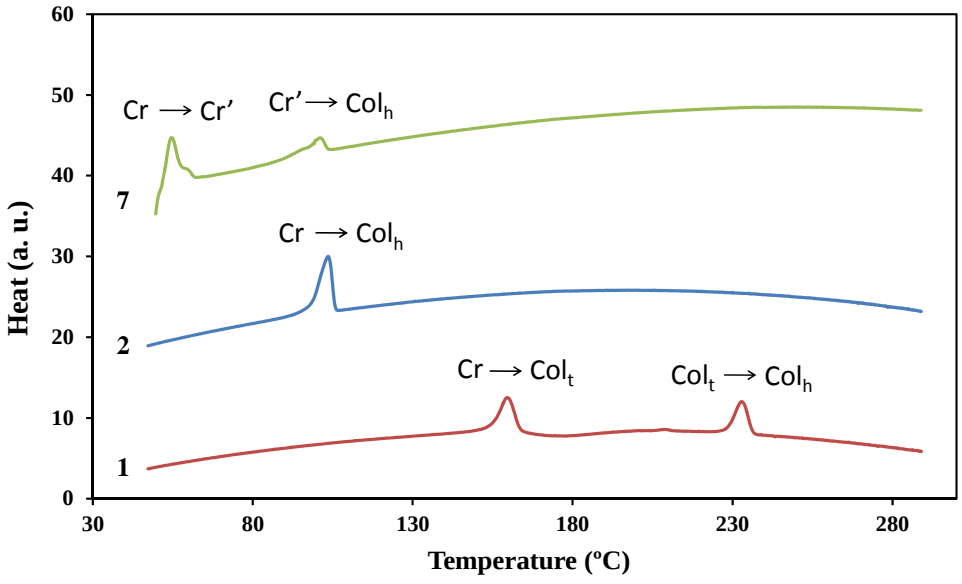

Fig. S2. DSC curves for compounds $[Pd(pz^{R(4,4)iq})_2]$ **1** , $[Pd(pz^{R(6,6)iq})_2]$ **2** and $[Pd(pz^{R(16,16)iq})_2]$ **7** on heating in the temperature range of 50 – 290 ºC .

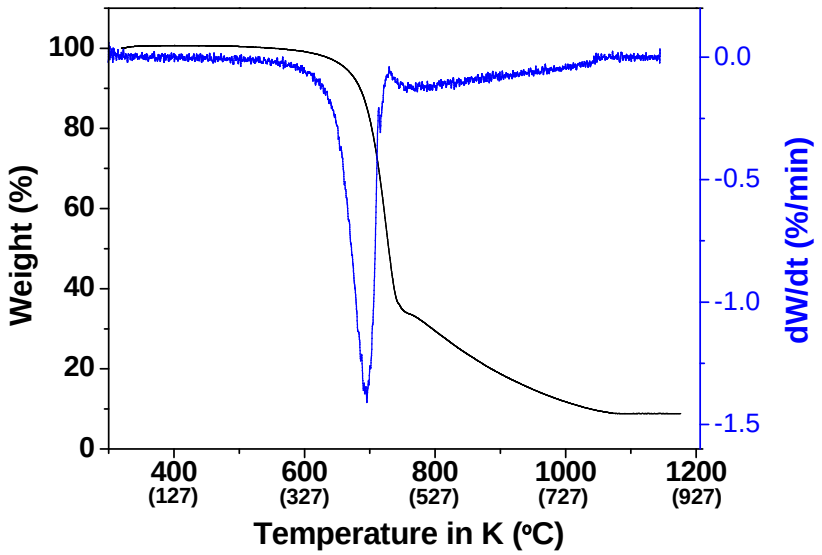

Fig. S3. TG-DTG curves for compound [Pd($pz^{R(16,16)iq}$)$_2$] **7**.

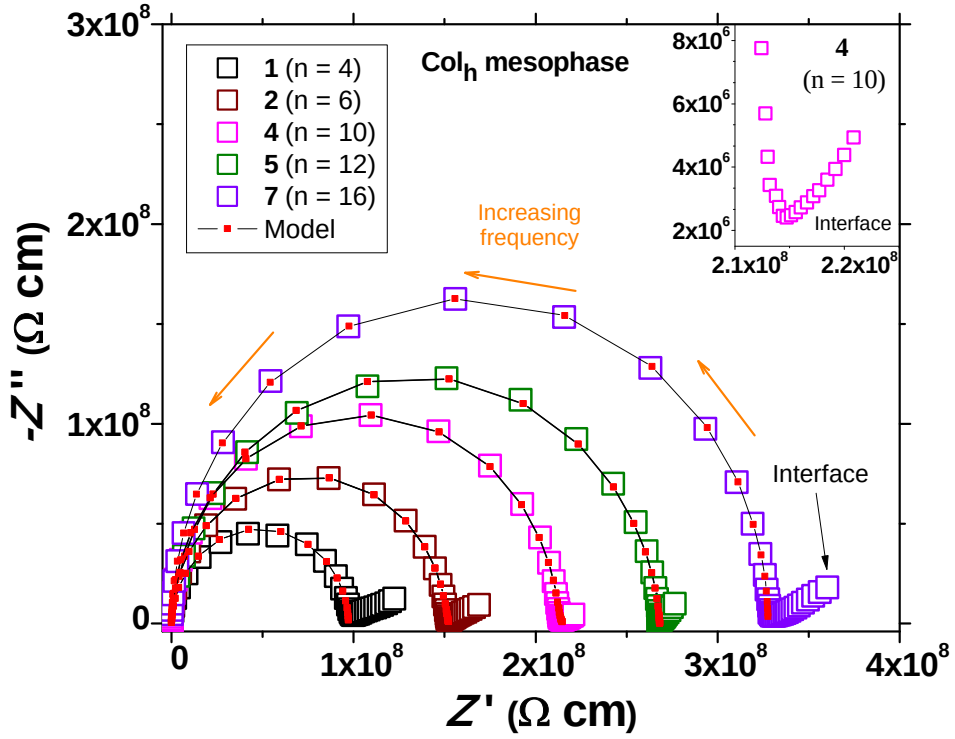

Fig. S4 -*Z*'' vs *Z*' plots for the Pd(II) complexes [Pd($pz^{R(n,n)iq}$)$_2$] **1**, **2**, **4**, **5** and **7** in the Col$_h$ mesophase at 560 K / 287 ºC (**1**, n = 4), 570 K / 297 ºC (**2**, n = 6), 570 K / 297 ºC (**4**, n = 10), 542 K / 269 ºC (**5**, n = 12) and 560 K / 287 ºC (**7**, n = 16). Open squares represent measured data and solid lines with squares display equivalent circuit fits. The inset shows the details of the interface pike for the data collected of [Pd($pz^{R(10,10)iq}$)$_2$] **4** at 570 K. The graphs for **2**, **4**, **5** and **7** have been enlarged by a constant factor of 24, 6, 360 and 195 respectively for demonstration purposes.

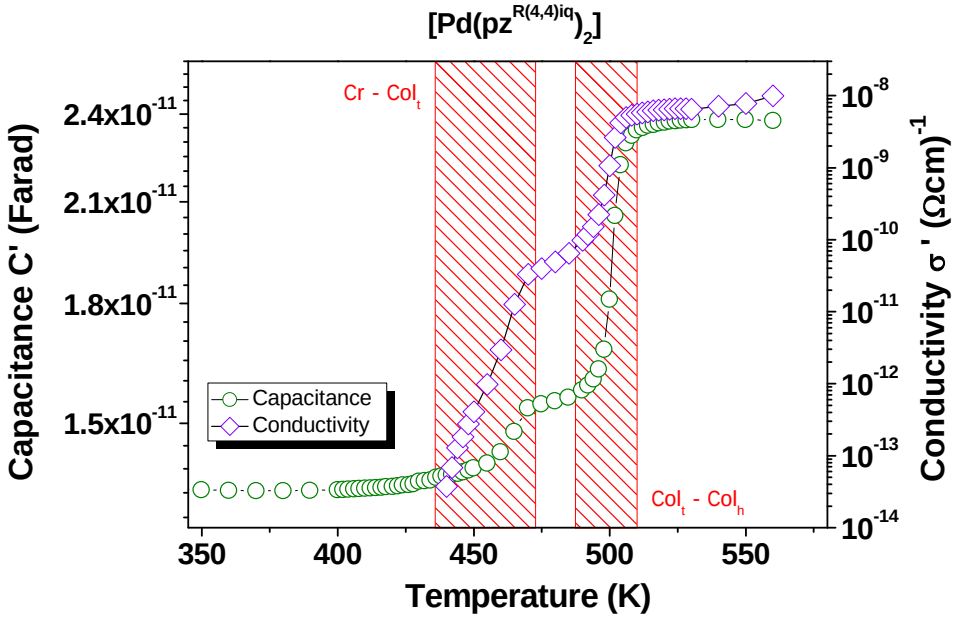

Fig. S5 *C*' and σ' vs *T* plots for the complex [Pd($pz^{R(4,4)iq}$)$_2$] **1** upon heating. The capacitance was measured at 1 MHz and the conductivity values were extracted from equivalent circuit fits. The red shaded areas show the Cr-Col$_t$ and Col$_t$-Col$_h$ phase transitions.

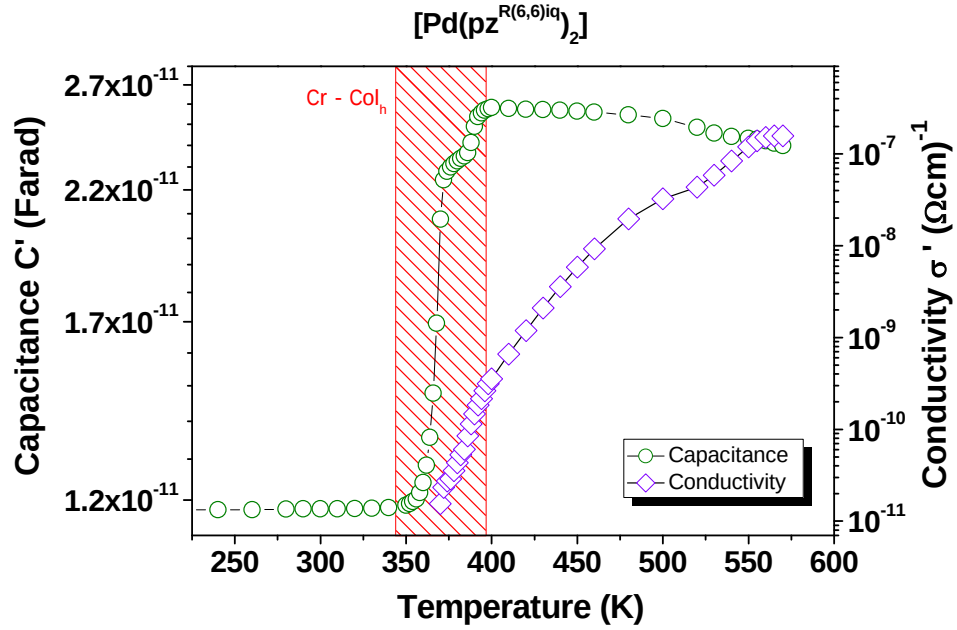

Fig. S6 *C*' and σ' vs *T* plots for the complex [Pd($pz^{R(6,6)iq}$)$_2$] **2** upon heating. The capacitance was measured at 1 MHz and the conductivity values were extracted from equivalent circuit fits. The red shaded area shows the Cr-Col$_h$ phase transition.

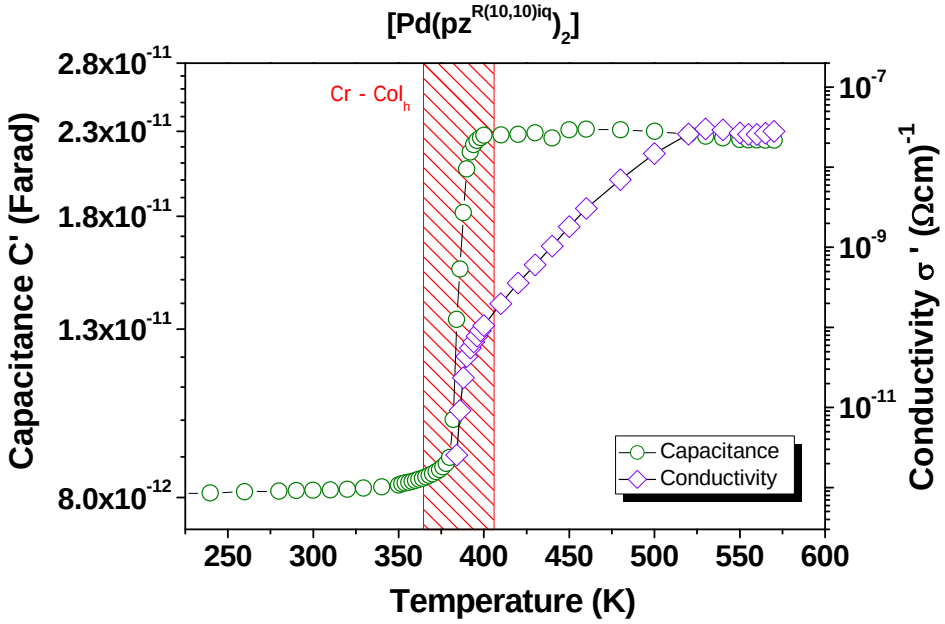

Fig. S7 *C*' and *σ*' vs *T* plots for the complex [Pd($pz^{R(10,10)iq}$)$_2$] **4** upon heating. The capacitance was measured at 1 MHz and the conductivity values were extracted from equivalent circuit fits. The red shaded area shows the Cr-Col$_h$ phase transition.

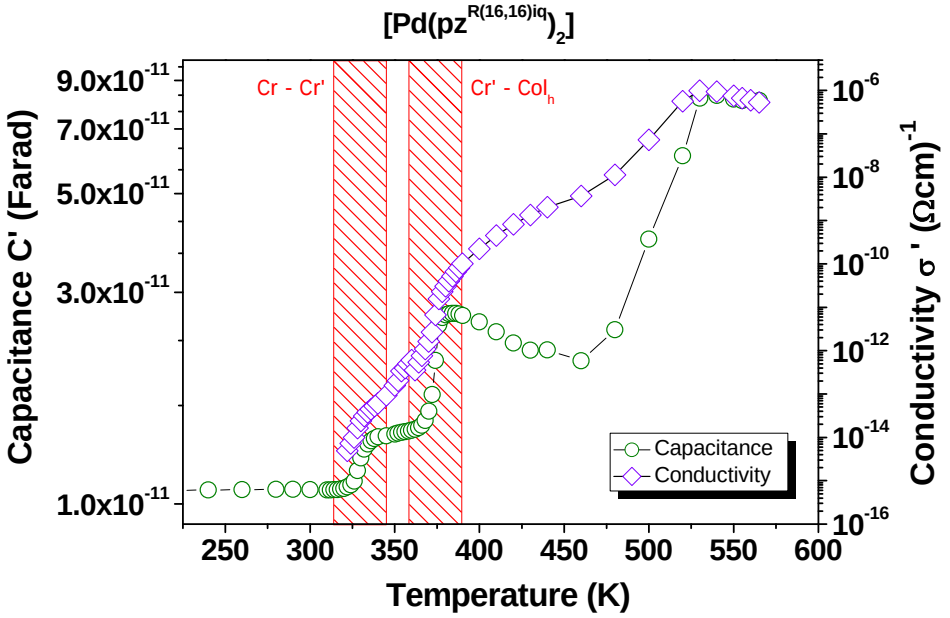

Fig. S8 *C*' and *σ*' vs *T* plots for the complex [Pd($pz^{R(16,16)iq}$)$_2$] **7** upon heating. The capacitance was measured at 10 MHz and the conductivity values were extracted from equivalent circuit fits. The red shaded areas show the Cr-Cr' and Cr'-Col$_h$ phase transitions.