A novel redox-stable family of substituted double-decker SMMs

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Supporting Information

1. LDI-MS spectra:



Figure S1 LDI-TOF spectrum of [TBA][3a]. The inset shows the molecular ion isotopic distribution.



Figure S2 LDI-TOF spectrum of [TBA][3b]. The inset shows the molecular ion isotopic distribution.



Figure S3 LDI-TOF spectrum of [TBA][3c]. The inset shows the molecular ion isotopic distribution.

Cyclic voltammetry:



Figure S4 Cyclic voltammogram of the oxidation processes of **[TBA][3a]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.



Figure S5 Cyclic voltammogram of all the processes of **[TBA][3a]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.



Figure S6 Cyclic voltammogram of the oxidation processes of **[TBA][3b]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.



Figure S7 Cyclic voltammogram of all the processes of **[TBA][3b]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.



Figure S8 Cyclic voltammogram of the oxidation processes of **[TBA][3c]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.



Figure S9 Cyclic voltammogram of all the processes of **[TBA][3c]** in DCM containing 0.1 M TBAPF₆ at various sweeping rates.

2. Magnetic measurements:



Figure S10 Temperature dependent in-phase ac-magnetic susceptibility $\chi' T$ of **[TBA][3a]** (top), **[TBA][3b]** (middle) and **[TBA][3c]** (bottom) measured at various frequencies.



Figure S11 Temperature dependent out-of-phase ac-magnetic susceptibility χ'' of **[TBA][3a]** (top), **[TBA][3b]** (middle) and **[TBA][3c]** (bottom) measured at various frequencies.



Figure S12 Frequency dependent in-phase ac-magnetic susceptibility $\chi'T$ of **[TBA][3a]** (top), **[TBA][3b]** (middle) and **[TBA][3c]** (bottom) measured at various temperatures. The solid lines are best fits to a Cole-Cole model.



Figure S13 Cole-Cole plots for compounds **[TBA][3a]** (top), **[TBA][3b]** (middle) and **[TBA][3c]** (bottom). The solid lines are best fits to a Debye process, with $1 - \alpha = 0.81$, 0.76, and 0.75, respectively.



Figure S14 Hysteresis of magnetization measured at 7 K for compounds [TBA][3a] (top), [TBA][3b] (middle) and [TBA][3c] (bottom).



Figure S15 Hysteresis of magnetization of compound [TBA][3a] measured at 2 K and various scan rates.