



SUPPLEMENTARY MATERIAL TO  
**Synthesis and structural analysis of polynuclear silver(I)  
complexes with 4,7-phenanthroline**

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$[Ag(CF_3SO_3)(4,7-phen)(CH_3CN)]_n$  (**1**). Anal. Calcd. for  $C_{15}H_{11}AgF_3N_3O_3S$  (FW 478.20): C, 37.68; H, 2.32; N, 8.79 %. Found: C, 37.75; H, 2.36; N, 8.65 %. <sup>1</sup>H-NMR (200 MHz, DMSO-*d*<sub>6</sub>, δ / ppm): 2.07 (*s*, CH<sub>3</sub>), 7.81 (*dd*, *J* = 8.4, 4.4 Hz, H1 and H10), 8.23 (*s*, H5 and H6), 9.05 (*dd*, *J* = 4.4, 1.6 Hz, H2 and H9), 9.35 (*dd*, *J* = 8.5, 1.7 Hz, H3 and H8). <sup>13</sup>C-NMR (50 MHz, DMSO-*d*<sub>6</sub>, δ / ppm): 1.1 (CH<sub>3</sub>), 122.4 (C1 and C10), 124.3 (C≡N), 124.8 (C1a and C10a), 131.8 (C3 and C8), 131.9 (C5 and C6), 147.0 (C4a and C6a), 150.9 (C2 and C9). IR (KBr, cm<sup>-1</sup>): 3048, 2924 (ν(C<sub>ar</sub>-H)), 2136 (ν(C≡N)), 1624, 1498, 1445 (ν(C<sub>ar</sub>=C<sub>ar</sub>) and ν(C<sub>ar</sub>=N)), 1263, 1255 (ν<sub>as</sub>(SO<sub>3</sub>)), 1247 (ν<sub>s</sub>(CF<sub>3</sub>)), 1168 (ν<sub>as</sub>(CF<sub>3</sub>)), 1031 (ν<sub>s</sub>(SO<sub>3</sub>)), 824, 796 (γ(C<sub>ar</sub>-H)), 754 (δ<sub>s</sub>(CF<sub>3</sub>)), 635 (δ<sub>s</sub>(SO<sub>3</sub>)), 594 (δ<sub>as</sub>(CF<sub>3</sub>)), 517 (δ<sub>as</sub>(SO<sub>3</sub>)).

$[Ag(PO_2F_2)(4,7-phen)]_n$  (**2**). Anal. Calcd. for  $C_{12}H_8AgF_2N_2O_2P$  (FW 389.04): C, 37.05; H, 2.07; N, 7.20 %. Found: C, 37.28; H, 2.15; N, 7.05 %. <sup>1</sup>H-NMR (200 MHz, DMSO-*d*<sub>6</sub>, δ / ppm): 7.82 (*dd*, *J* = 8.4, 4.4 Hz, H1 and H10), 8.24 (*s*, H5 and H6), 9.05 (*dd*, *J* = 4.4, 1.6 Hz, H2 and H9), 9.35 (*dd*, *J* = 8.4, 1.6 Hz, H3 and H8) ppm. <sup>13</sup>C-NMR (50 MHz, DMSO-*d*<sub>6</sub>, δ / ppm): 122.5 (C1 and C10), 124.8 (C1a and C10a), 131.9 (C3 and C8), 132.0 (C5 and C6), 146.9 (C4a and C6a), 151.0 (C2 and C9). IR (KBr, cm<sup>-1</sup>): 3087, 2924 (ν(C<sub>ar</sub>-H)), 1618, 1588, 1501, 1445 (ν(C<sub>ar</sub>=C<sub>ar</sub>) and ν(C<sub>ar</sub>=N)), 1305, 1149 (ν(PO)), 838 (ν(PF)), 796, 740 (γ(C<sub>ar</sub>-H)).

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