

Supplementary Data:

The First Polymeric Silver(I) Coordination Tubes

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Experimental: [Ag(*trans*-tach)]CF₃SO₃ (1):

A methanolic solution (1.5 ml) of silver(I) triflate (88 mg, 0.34 mmol) was added dropwise to a solution of *trans*-tach (**29**, 82 mg, 0.63 mmol) in methanol (10 ml). A white precipitate was formed upon stirring, which was removed by filtration. Crystallisation by diffusion of ether resulted in colourless crystals of **55**, suitable for single crystal X-ray analysis. Yield: 74 mg (0.19 mmol, 56 %). [C₇H₁₅AgF₃N₃O₃S]_n - found (calc)%: C 21.52 (21.77), H 3.63 (3.92), N 10.60 (10.88). ¹H-NMR (300 MHz, D₂O) δ/ppm 3.38 (bs, 1H, H_a), 3.22 (t, 2H, *J* 8.6 Hz, H_d), 2.26 (d, 1H, *J* 8.6 Hz, H_e), 1.90 (d, 2H, *J* 9.6 Hz, H_b), 1.31 (td, 2H, *J* 9.6, 2.2 Hz, H_c), 1.06 (q, 1H, *J* 8.6 Hz, H_f); IR (Golden Gate) ν/cm⁻¹ 3336(m), 3275(m), 2900(w), 2856(w), 1595(m), 1458(w), 1356(w), 1269(s), 1248(vs), 1228(s), 1176(m), 1153(s), 1111(w), 1030(s), 989(m), 953(m), 922(w), 901(w), 874(w), 843(m), 808(m), 760(m), 737(w), 698(w), 636(vs).

[Ag(*cis*-tach)]CF₃SO₃ (2): Silver(I) triflate (99 mg, 0.39 mmol) in methanol was added dropwise to a solution of *cis*-tach (100 mg, 0.78 mmol) in methanol (2 ml). Upon stirring a white precipitate of **2** occurs, which dissolved completely after addition of water (3 ml) to give a clear, colourless solution. Single crystals suitable for X-ray diffraction were obtained by ether diffusion. Yield: 172 mg (0.413 mmol, 53%) [Ag(C₆H₁₅N₃)(CH₃OH)CF₃SO₃]_n - found (calc.)%: C 22.89 (22.98), H 4.61 (4.58), N 10.24 (10.05); ¹H-NMR (400 MHz, D₂O) δ/ppm 3.11 (t, 3H, *J* 11.05 Hz), 2.16 (d, 3H, *J* 11.47 Hz), 0.98 (q, 3H, *J* 11.83 Hz); IR (KBr) ν/cm⁻¹ 3328(m), 3280(m), 2381(w), 2348(w), 1583(m), 1459(m), 1384(m), 1268(s), 1228(s), 1155(s), 1072(m), 1027(s), 950(m), 900(w), 813(w), 759(w).