Table S1 Crystal data and structure refinement for **2**

Formula	$C_{36}\ H_{64}\ O_4\ S_4\ Si_8$
Fw	913.87
T, K	273 (2)
λ (Å)	0.71073
Crystal system	Tetragonal
Space group	P 42/n
a (Å)	19.665(3)
b (Å)	19.665(3)
c (Å)	6.6339(13)
α (deg)	90
β (deg)	90
γ (deg)	90
V, (Å^3)	2565.4(9)
Z	2
ρ_{calcd} (Mg/m^3)	1.183
μ (mm^{-1})	0.405
F(000)	976
Crystal size	0.20 x 0.10 x 0.10 mm
θ range (deg)	1.46 - 25.00
Reflections collected	12847
Unique data	2260
R_{int}	0.0850
Reflections observed (>2σ)	2051
Data completeness	1.000
Max. and min. Transmission	0.9762 and 0.9532
Data / restraints / parameters	2260 / 0 / 121
GOF	2.015
Final R indices (I>2σI)	R~1 = 0.2031 wR~2 = 0.4786
R indices (all data)	R~1 = 0.2117 wR~2 = 0.4832
Largest diff. peak and hole	3.425 and -0.930 eÅ^{-3}

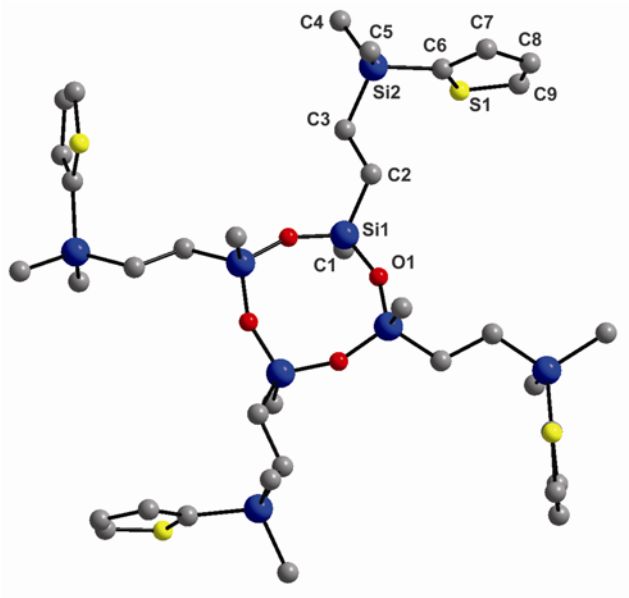

Fig. S1 Structure of **2** showing *all trans* conformation (all hydrogen atoms are omitted for clarity)

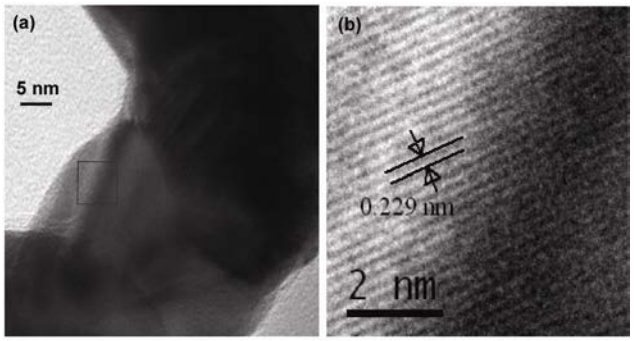

Fig. S2 (a) HRTEM image of the gold nanowire assemblies in **3** (b) the expanded region of the inset shown in figure (a)