Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting information for "Why organically functionalized nanoparticles increase the electric conductivity of nematic liquid crystal dispersions"

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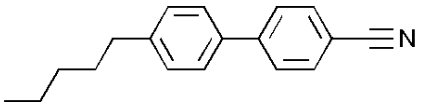
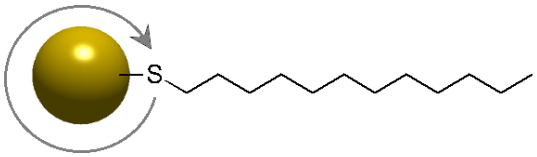
1 Lewis structures of compounds used in this study

1.1 4-cyano-4'-pentylbiphenyl (5CB)



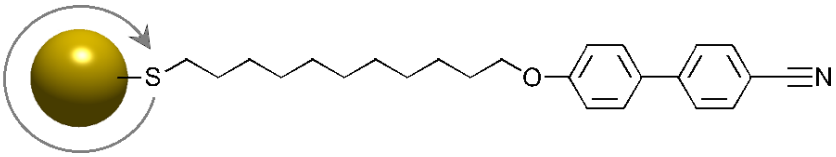
CAS Number: 40817-08-1
Molar mass: $M = 249.36$ g/mol

1.2 Dodecanethiol capped gold particles (NP1)



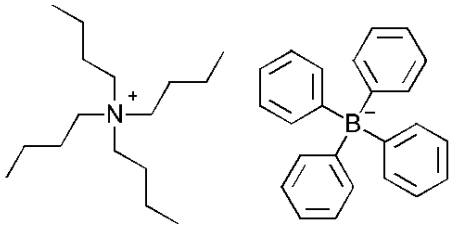
Gold core diameter: 3 - 5 nm.
Purchased from Sigma-Aldrich as dispersion in toluene.

1.3 11-(4'-cyanobiphenyl-4-yloxy)undecylthiol capped gold particles (NP2)



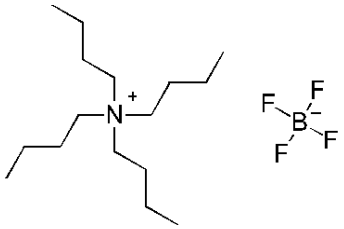
Gold core diameter: 2.40 nm[1]
Synthesized by M. Draper (University of York, UK) following the Hutchinson ligand exchange method[2].

1.4 Tetrabutylammonium tetraphenylborate (S1)



CAS Number: 15522-59-5
Molar mass: $M = 561.69$ g/mol

1.5 Tetrabutylammonium tetrafluoroborate (S2)



CAS Number: 429-42-5
Molar mass: $M = 329.27$ g/mol

References

[1] M. Draper, I. M. Saez, S. J. Cowling, P. Gai, B. Heinrich, B. Donnio, D. Guillon and J. W. Goodby, *Advanced Functional Materials*, 2011, **21**, 1260–1278.

[2] W. W. Weare, S. M. Reed, M. G. Warner and J. E. Hutchison, *Journal of the American Chemical Society*, 2000, **122**, 12890–12891.