



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/1812>

| | |
|--------------|--|
| Title: | TNF Induced Switching of Columnar Rectangular to Hexagonal Assemblies in a New Class of Triphenylene-Based Room Temperature Discotic Liquid Crystals |
| Authors: | Gupta, Monika (/jspui/browse?type=author&value=Gupta%2C+Monika) Gupta, Santosh Prasad (/jspui/browse?type=author&value=Gupta%2C+Santosh+Prasad) Pal, S.K. (/jspui/browse?type=author&value=Pal%2C+S.K.) |
| Keywords: | Physical and chemical processes Mesostructures, Phase transitions, |
| Issue Date: | 2017 |
| Publisher: | ACS Publications |
| Citation: | Journal of Physical Chemistry B, 121 (36) |
| Abstract: | A straightforward synthesis of triphenylene-based oligomeric systems that self-organize into room temperature columnar structures is presented. The compounds with longer spacer length ($m = 10$ and 12) exhibit columnar rectangular (Colr) mesophase whereas the compound with $m = 8$ exists in glassy Colr state. Interestingly, the Colr self-assembly of these compounds switches to columnar hexagonal (Colh) on doping the compounds with 2,4,7-trinitrofluorenone (TNF). For the dopant concentration of 1:1 with respect to native compound, an intermediate transition state between Colr and Colh phase was observed which completely transformed into the hexagonal phase on increasing the concentration to 1:2 (compound: TNF) and afterward. Both the Colr and Colh self-assemblies have been well resolved by detailed X-ray analysis. These kind of oligomeric compounds generally possess a combination of desirable alignment properties analogous to monomeric compounds and long-lived glassy states similar to that of polymeric mesogens. In addition, charge hopping behavior is expected to increase in these compounds due to donor-acceptor interactions. Overall, these compounds can find possible potential applications in semiconductor devices. |
| URI: | https://pubs.acs.org/doi/abs/10.1021/acs.jpcb.7b06737 (https://pubs.acs.org/doi/abs/10.1021/acs.jpcb.7b06737) http://hdl.handle.net/123456789/1812 (http://hdl.handle.net/123456789/1812) |
| Appears in | Research Articles (/jspui/handle/123456789/9) |
| Collections: | |

Files in This Item:

| File | Description | Size | Format |
|--|-------------|------------|----------------------|
| Need to add pdf.odt (/jspui/bitstream/123456789/1812/1/Need%20to%20add%20pdf.odt) | | 8.63 kB | OpenDocument Text |

[View/Open \(/jspui/bitstream/123456789/1812/1/Need%20to%20add%20pdf.odt\)](/jspui/bitstream/123456789/1812/1/Need%20to%20add%20pdf.odt)

[Show full item record \(/jspui/handle/123456789/1812?mode=full\)](/jspui/handle/123456789/1812?mode=full)

[Statistics \(/jspui/handle/123456789/1812/statistics\)](/jspui/handle/123456789/1812/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.