

## Ionic liquid crystals based on 3-perfluoroalkyl-1,2,4-triazol-4-ium salts

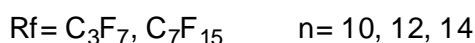
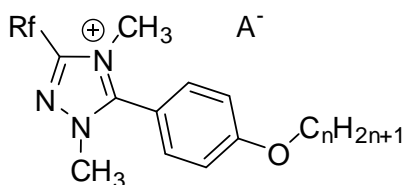
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Liquid-crystalline ionic liquids (LC-ILs) are a class of organic materials that of great current interest: they are defined as organic salts that possess the properties of two interesting kinds of material – ionic liquids (ILs) and liquid crystals (LCs). LC-ILs combine many interesting features of ILs (e.g. low volatility and the ability to dissolve solutes with a range of polarities) as well as many attractive properties of LCs (e.g. their intrinsic order and anisotropy). This provides unique opportunities that can be exploited in many different fields, for example their use as solvents for extraction processes as well as electrolytes for batteries, fuel cells, and dye-sensitised solar cells<sup>1-4</sup>. These LC-ILs can also be used to immobilise transition-metal catalysts in the liquid phase of biphasic catalytic reactions<sup>1</sup> or as reaction media in order to exert control, over the rate, regio- and/or stereochemical outcome of chemical reactions<sup>5,6</sup>.

We are interested in LC-ILs that are obtained from molecules with small, planar structures based on alkyl and perfluoroalkyl-1,2,4-triazol-4-ium salts<sup>7-9</sup> (Scheme 1). This contribution will report the synthesis, structure and liquid-crystal properties of materials of this type and will discuss preliminary investigations into their physical properties and applications.



**Scheme 1**

### References

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