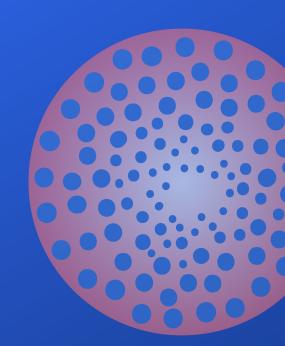
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Conventional oils have limited solubility...

Cations

Anions

oil homogeneous solution $(C_vim[Tf_2N]-LiTf_2N)$



Diverse structures can be obtained depending on LiTf₂N concentration and alkyl length.

...but ionic liquids (ILs) are molten salts characterised by their excellent solubility.





By increasing salt concentration, complex water/oil drops can be generated.



Reaction is reversible

+ LiTf₂N

Osmotically driven emulsion



Seawater desalination

Osmotically driven oil/water phase separation is an exciting discovery with important applications.

Observation of osmotically driven, highly controllable and reconfigurable oil/water phase separation



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