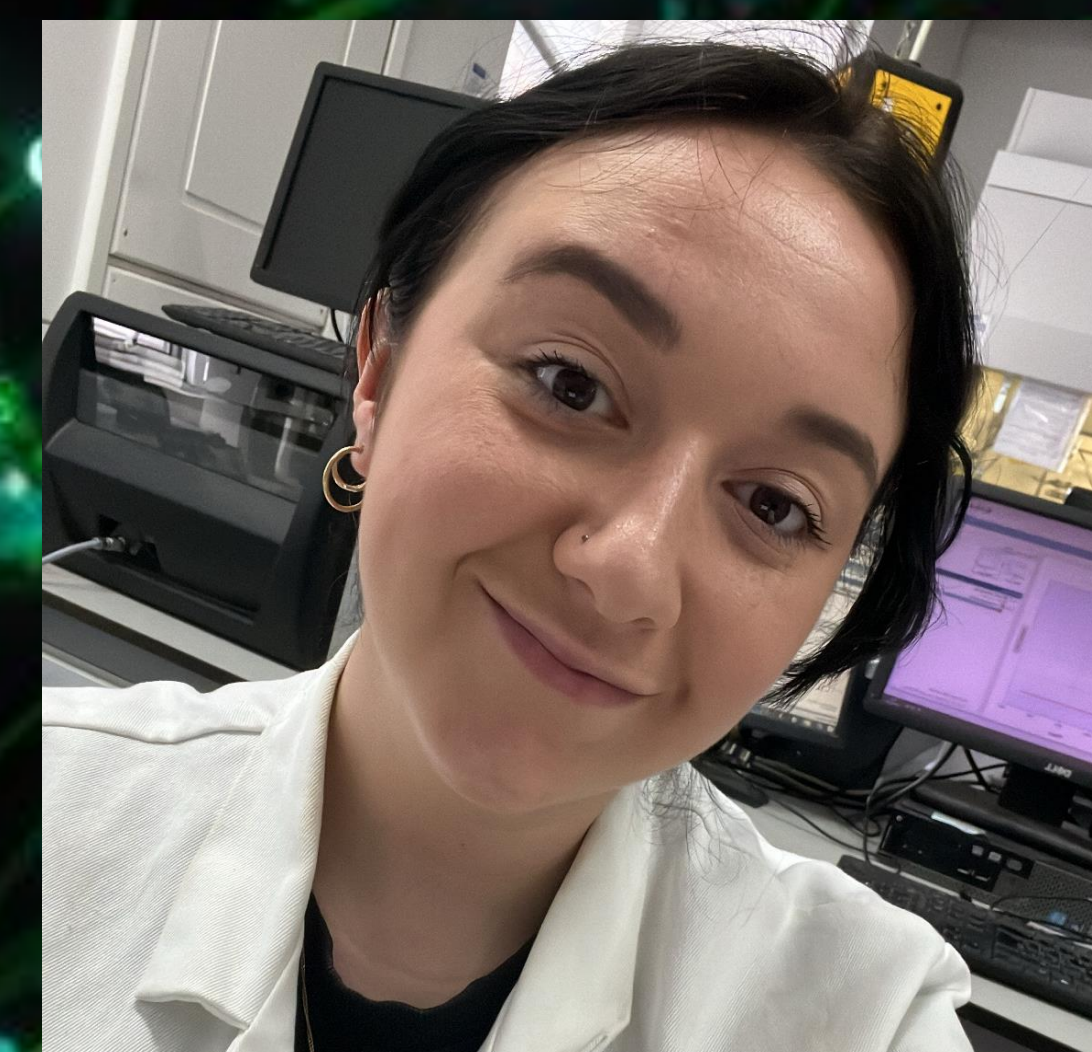




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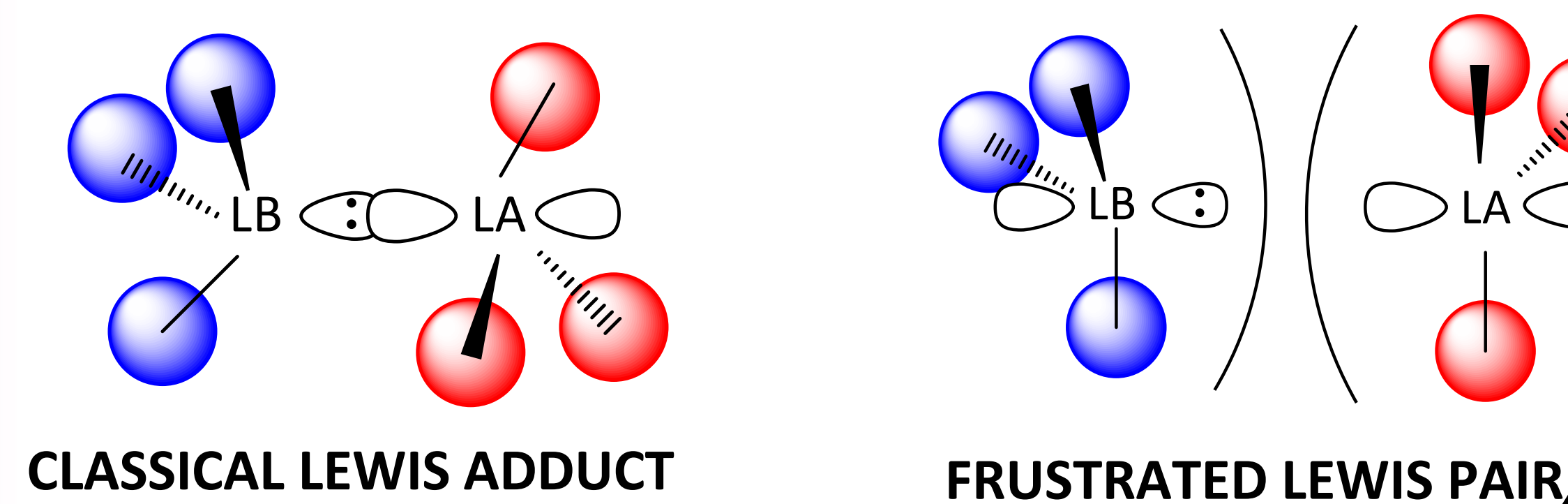
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Manipulating Cation Lewis Acidity to Create Functional IL Systems

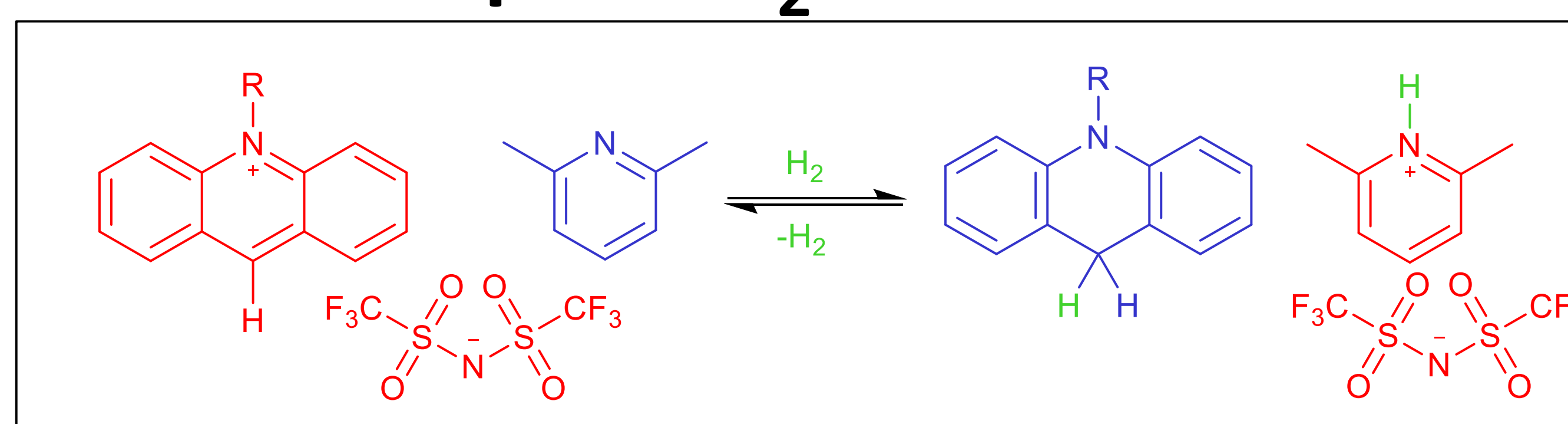
Aloisia E King, Małgorzata Swadźba-Kwaśny, John D Holbrey

QUILL Research Centre, School of Chemistry and Chemical Engineering, Queen's University Belfast. Email: aking27@qub.ac.uk



Frustrated Lewis acid/base pairs (FLPs) are LA/LB that do not form classical adducts

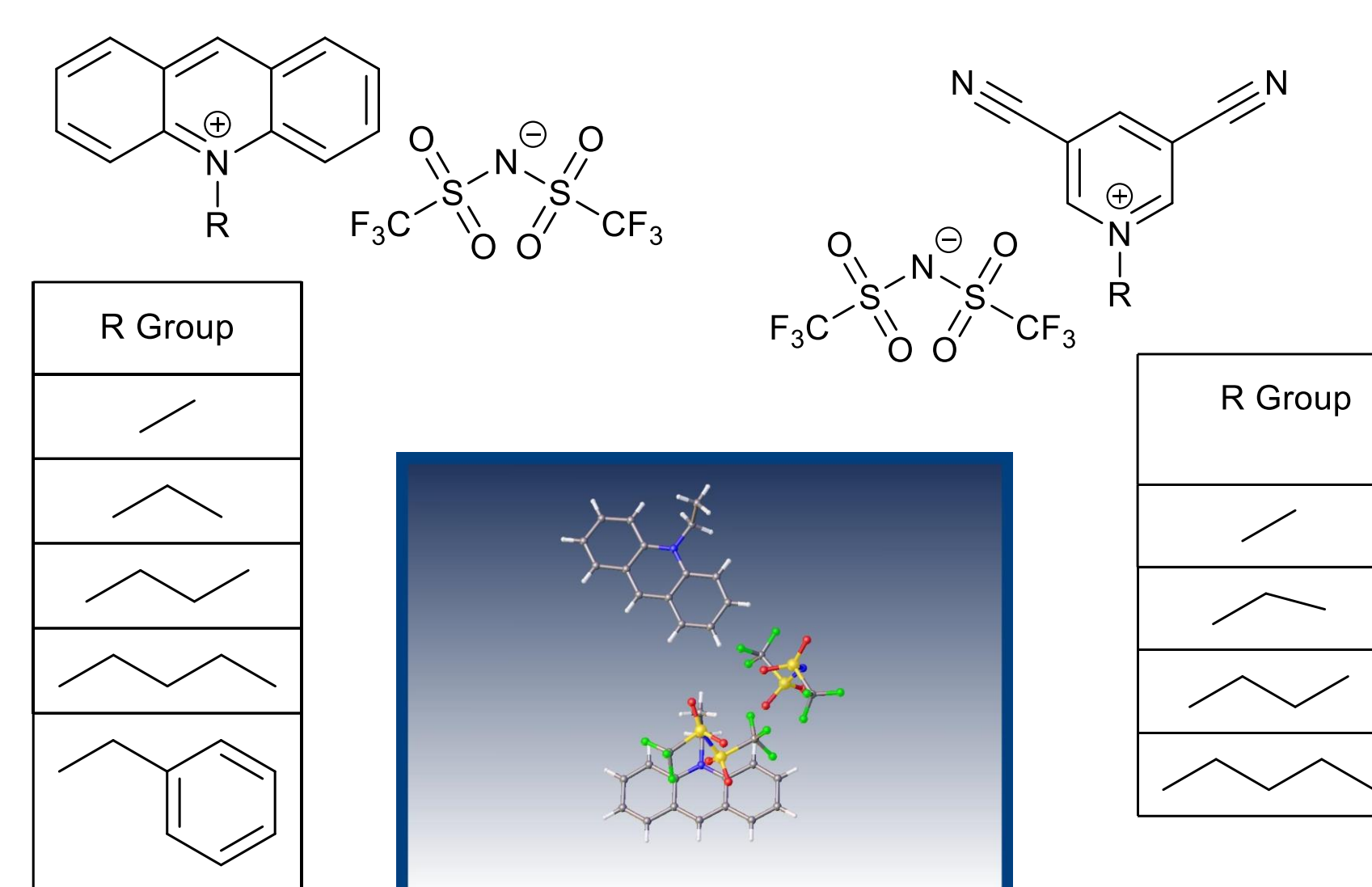
Conceptual H₂ activation



- N-methylacridinium salt/lutidine pairs are water/air tolerant FLPs that can activate H₂ in CH₂Cl₂ solution - activity is strongly anion dependent: [BPh₄]⁻ best, but limited by solubility (Ingleson and co-workers, *Angew. Chem*, 2010, **49**, 46, 11309; 2014, **53**, 11306)

- Our concept – when combined with appropriate anion, e.g. [NTf₂]⁻ it should be possible to generate a wholly IL system before, during and after H₂ activation
- High intrinsic FLP concentrations are highly active for H₂ capture and/or activation

Ability to utilize range of Novel LA ILs

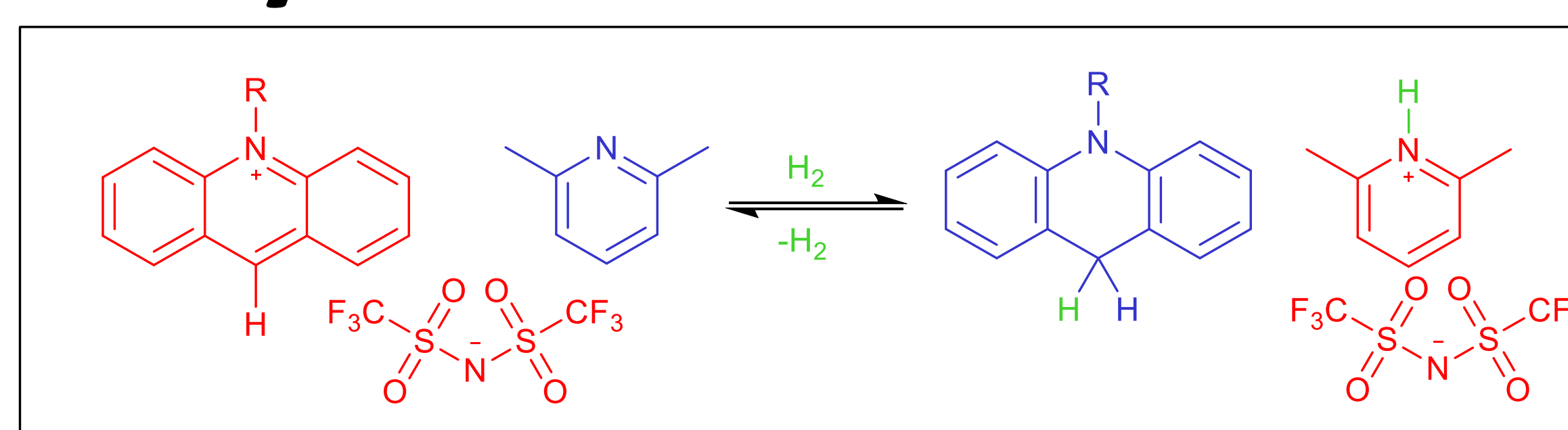


Introduction

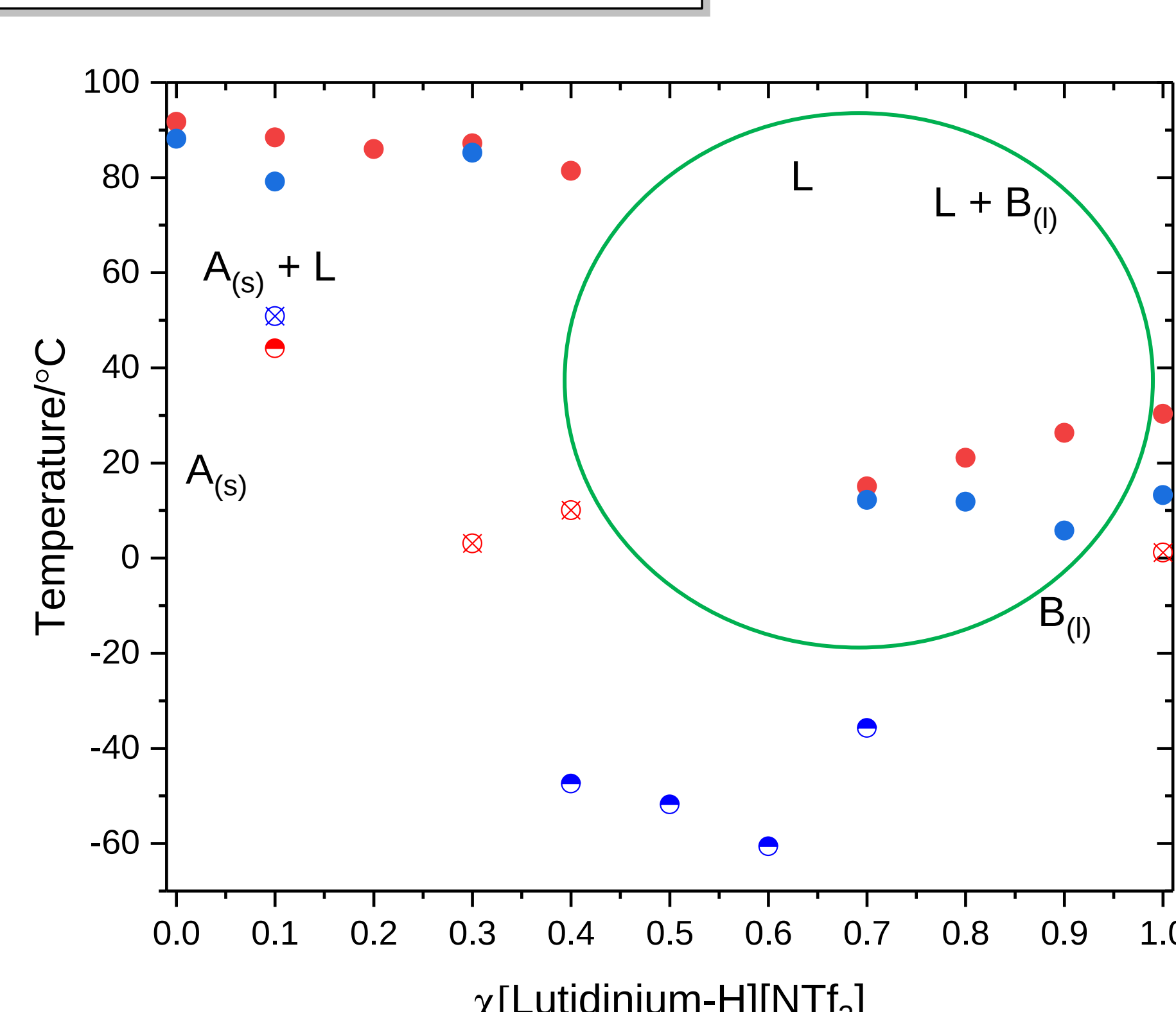
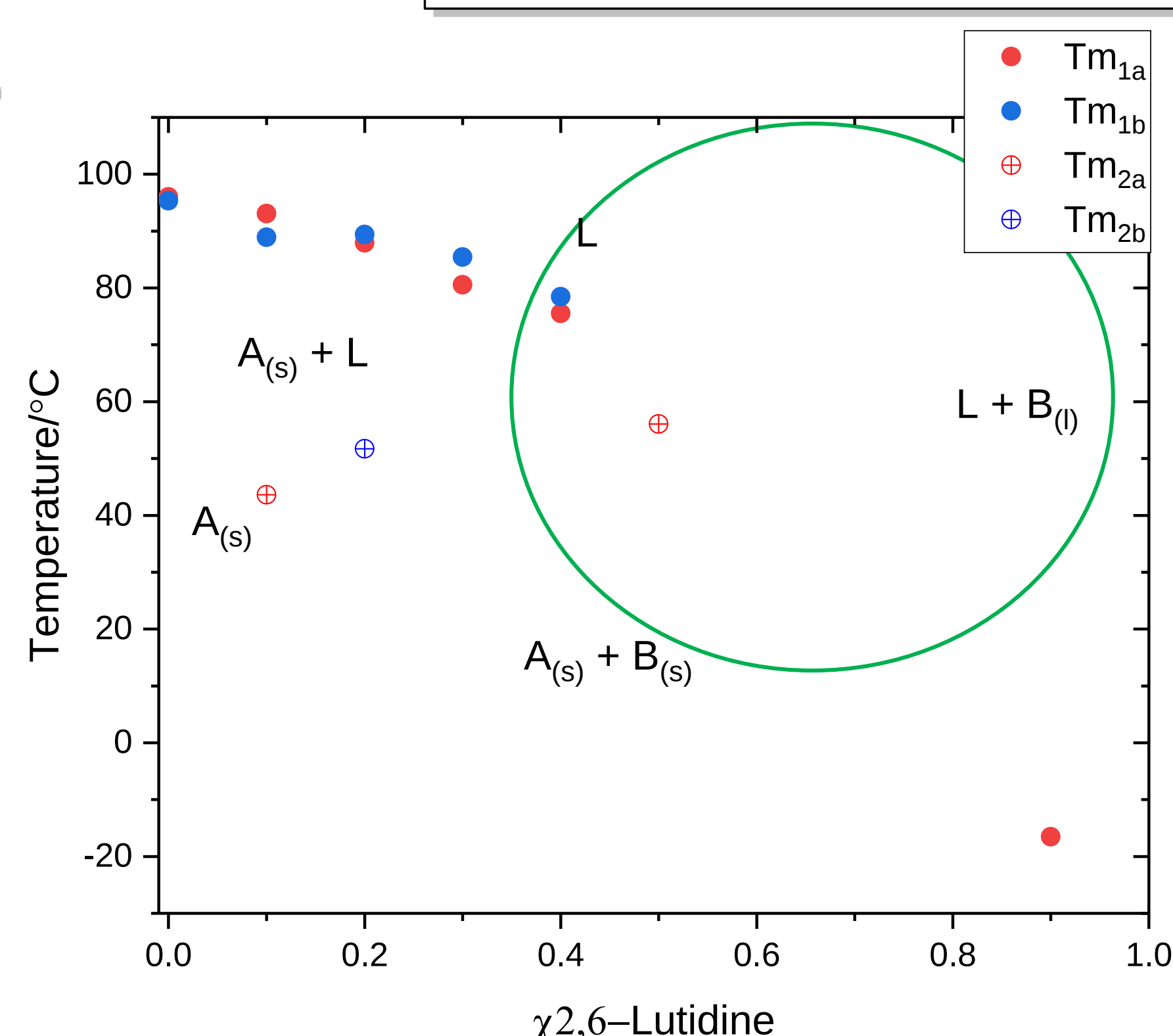
Intrinsically IL FLP System

Results

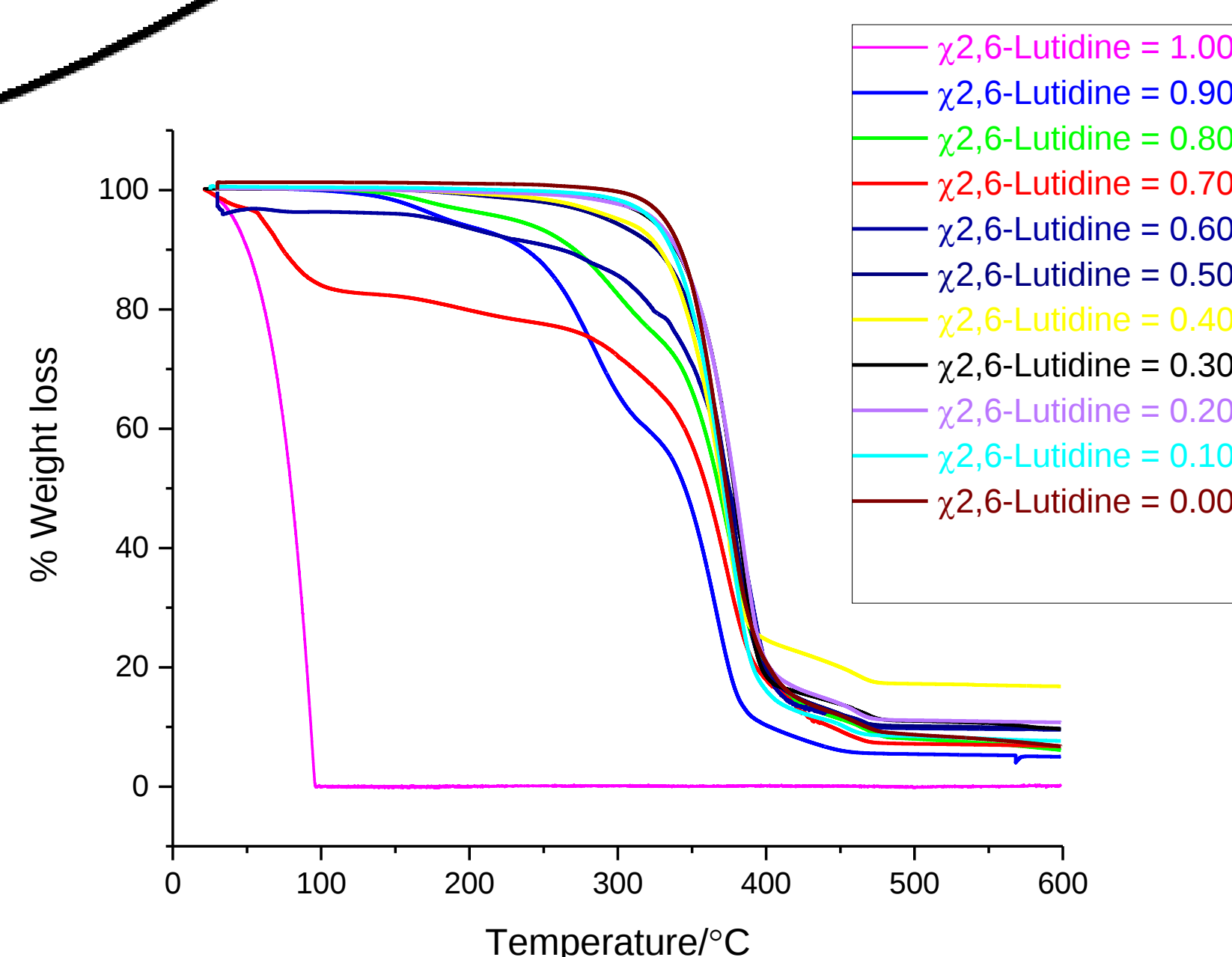
Does our system behave like an IL – yes!



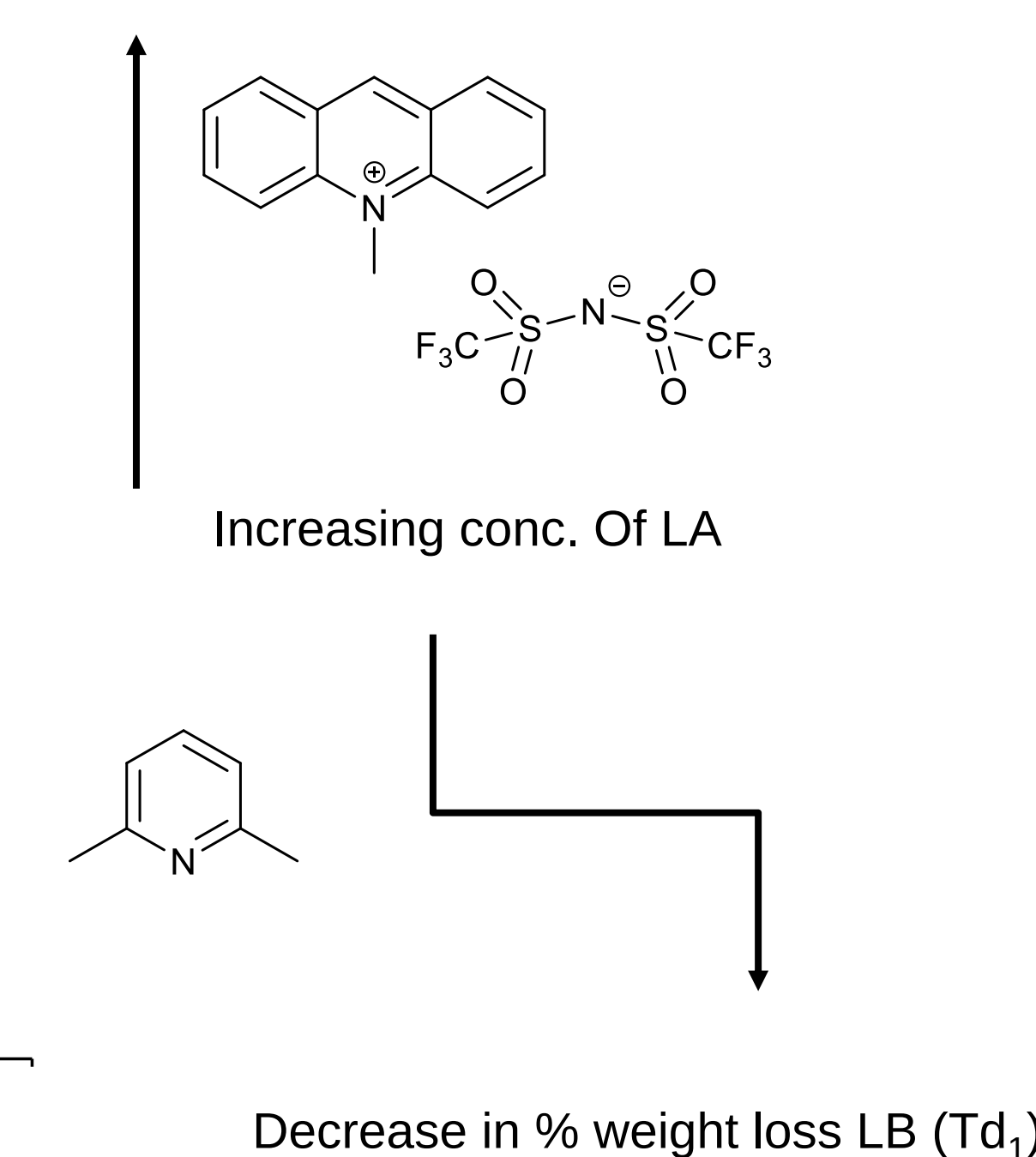
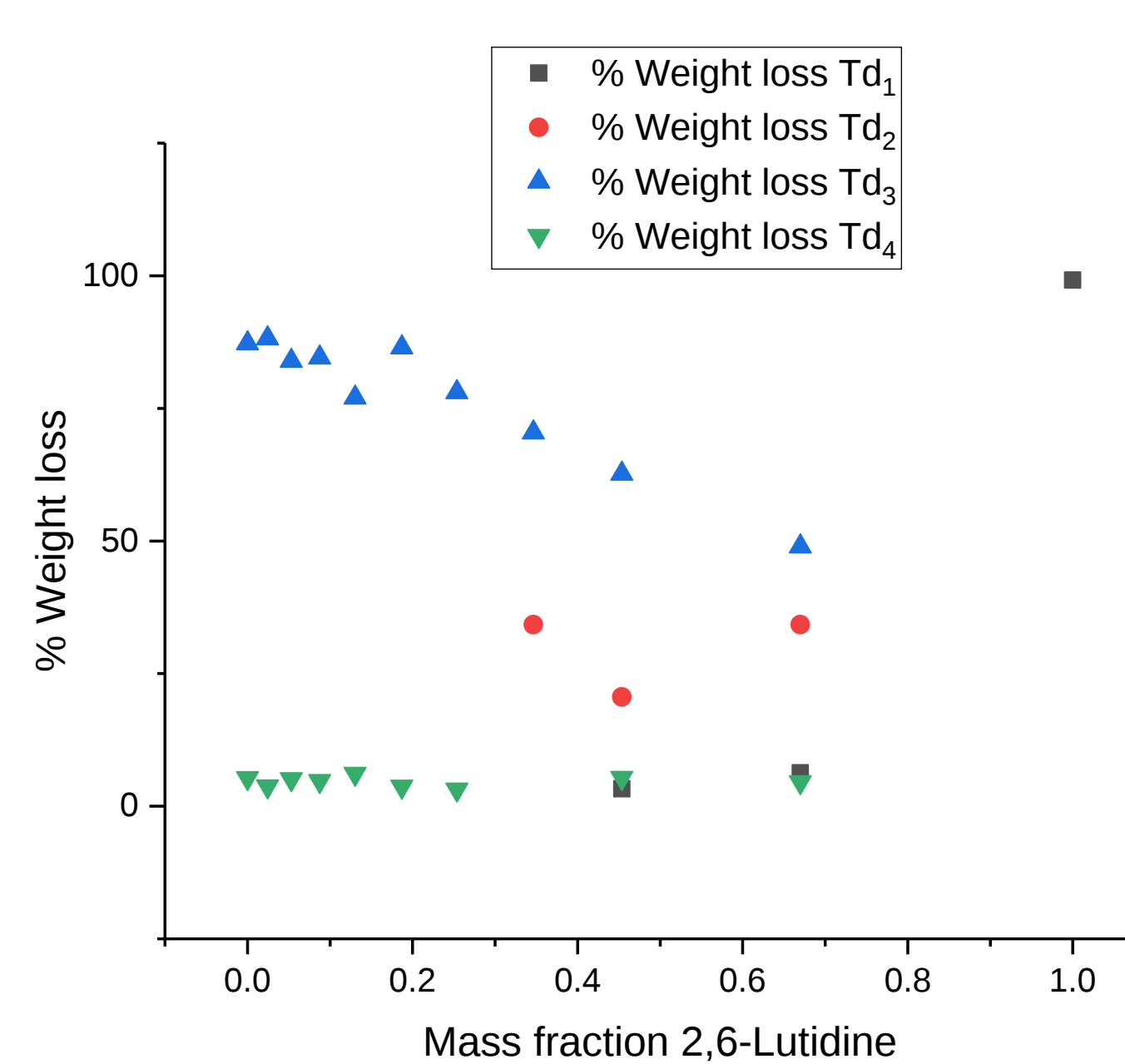
Increasing χ [Lutidinium-H][NTf₂] concentration



Entrainment of LB by Frustrated LA



TGA data of χ 2,6-Lutidine = 1.00-0.00 exhibits entrainment of the volatile 2,6-Lutidine by the Frustrated LA



Acknowledgements

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