

Probing Supramolecular Structures in Solution by Resonant Energy Transfer in the X-Ray Range

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ABSTRACT

Resonant energy transfer between donor and acceptor atoms in the X-ray range can span several nanometres, and lies at the heart of far-zone resonant energy transfer (FZRET) spectroscopy.¹ Sensitive to the donor–acceptor distance, this advanced spectroscopic technique enables structural studies with atomic spatial resolution. For its first application to a liquid microjet,² a concentrated aqueous solution of potassium acetate was selected. The investigation of multiple donor–acceptor pairs allowed the characterisation of cation–anion, cation–water, and cation–cation distance distributions, thereby probing the supramolecular organisation of the solution. These experiments revealed an inhomogeneous ion distribution in water, consistent with the presence of nanometre-sized ionic aggregates in solution.

REFERENCES

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