"Combined experimental and theoretical investigations of doped helium clusters"

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In a series of recent papers we have investigated helium clusters doped different impurities [1-4]. By means of both classical (basin-hopping and evolutive algorithms) and quantum mechanical approaches (diffusion and path integral Monte Carlo) energies and geometrical structures have been analyzed in order to find the most stable configurations as a function of the number of He atoms. In collaboration with Paul Scheier's experimental group in Innsbruck we have focussed on Li^+ [5] and Cs^+ ions solvated in He_N droplets. This talk will review all those combined theoretical and experimental efforts to study such complexes.

[1] R. Rodríguez-Cantano *et al. J. Chem. Phys.* **142** 104303 (2015).
[2] R. Rodríguez-Cantano *et al. J. Chem. Phys.* **143** 224306 (2015).
[3] R. Rodríguez-Cantano *et al. J. Chem. Phys.* **146** 034302 (2017).
[4] R. Rodríguez-Cantano *et al. Int. Rev. Phys. Chem.* **35** 37 (2016).
[5] M. Rastogi *et al. Phys. Chem. Chem. Phys.* **28** 25569 (2018).