

Title: Radio interferometric imaging with compressed sensing

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Abstract: Radio interferometry is a powerful technique for astronomical imaging. The theory of compressed sensing (CS) has been applied recently to the ill-posed inverse problem of recovering images from the measurements taken by radio interferometric telescopes. I will review novel CS radio interferometric imaging techniques, both at the level of acquisition and reconstruction, and discuss their superior performance relative to traditional approaches. In order to remain as close to the theory of CS as possible, these techniques necessarily consider idealised interferometric configurations. To realise the enhancement in quality provided by these novel techniques on real radio interferometric observations, their extension to realistic interferometric configurations is now of considerable importance. I will also chart the future direction of research required to achieve this goal.