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# Recovering 21cm intensity maps: joint beam-deconvolution and foreground subtraction

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## Abstract

SKA will tomographically characterise the universe thanks to the detection of the redshifted 21-cm radiation. However, in order to extract the astrophysical/cosmological signal, foreground contamination and instrumental effects need to be addressed in the most accurate and precise way. Usually, these two main challenges have been faced separately, as a blind source separation problem and a deconvolution problem. Here, we believe for the first time, we solve both problems jointly, with a method based on sparse signal modeling and an efficient alternative projected least square algorithm. We test the method against realistic simulations and we show preliminary and encouraging results.

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