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Title:	Upcoming SKA precursor surveys and sensitivity to HI mass function
Authors:	Bharti, Sauraj (/jspui/browse?type=author&value=Bharti%2C+Sauraj) Bagla, J. S. (/jspui/browse?type=author&value=Bagla%2C+J.+S.)
Keywords:	SKA precursor sensitivity
Issue Date:	2022
Publisher:	Springer Nature
Citation:	Journal of Astrophysics and Astronomy, 43(2), 95.
Abstract:	We describe a simulation for the distribution of galaxies focusing on the atomic hydrogen content. Our aim is to make predictions for surveys of galaxies using the redshifted 21-cm line emission. We take the expected distribution of HI masses, circular velocities, sizes of galaxies and orientations into account for this simulation. We use the sensitivity of ASKAP and MeerKAT radio telescopes to estimate the number of detections of HI galaxies in upcoming surveys. We validate our simulation with earlier estimates carried out by using some of these considerations. We show that unlike earlier simulations that take some of the factors into account, the predicted number of galaxies and their distribution across masses changes significantly when all these are accounted for. We describe our predictions for the MIGHTEE-HI and WALLABY surveys for blind detection of galaxies using the redshifted 21-cm radiation. We study the dependence of the predicted number of detections on the HI mass function. We also describe our future plans to improve the simulation.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1007/s12036-022-09884-x">https://doi.org/10.1007/s12036-022-09884-x</a> ( <a href="https://doi.org/10.1007/s12036-022-09884-x">https://doi.org/10.1007/s12036-022-09884-x</a> ) <a href="http://hdl.handle.net/123456789/4968">http://hdl.handle.net/123456789/4968</a> ( <a href="http://hdl.handle.net/123456789/4968">http://hdl.handle.net/123456789/4968</a> )
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