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## Optimisation of galaxy identification methods in large HI surveys

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The future of analysing HI-data cubes with respect to understanding the evolution of the neutral gas content in galaxies will take a giant leap forward. This is due to the advent of the HI-survey projects that will be pursued with the Square Kilometer Array (SKA) and its Pathfinders. The forthcoming HI-surveys will produce spectral data cubes of unprecedented size. In preparation for the huge data volumes that will be generated, various automated source identification and parametrisation applications have been developed (e.g. SOFIA; see Serra et al. 2016). While these algorithms have been thoroughly tested on simulated HI data cubes (see Popping et al. 2012), they have not yet been evaluated in any systematic way on real data. In this paper, we present a comprehensive analysis of various source identification and parameterization methods of a three-dimensional large HI data cube obtained with the Westerbork Synthesis Radio Telescope (WSRT). The source-finding and parameterisation tools conform of visual, fully-automated, and semi-automated inspection. Each source-finding method is applied to the WSRT data cube, as well as a simulated data cube with equivalent parameters to the WSRT cube. The latter is used for quantifying reliability and completeness of the three methods. The final results will allow optimisation of the various algorithms.

**Apply to be considered for a student award (Yes / No)?**

Yes

**Level for award (Hons, MSc, PhD, N/A)?**

MSc

**Main supervisor (name and email) and his / her institution**

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**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

Yes

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