2nd URSI AT-RASC, Gran Canaria, 28 May – 1 June 2018

The HI4PI Survey

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1 Extended Abstract

We present HI4PI – a new all-sky survey of neutral atomic hydrogen in the Milky Way [1]. HI4PI is a dataset merged from the Effelsberg-Bonn HI Survey (EBHIS, [2]), made with the 100-m radio telescope at Effelsberg (Germany), and the Galactic All-Sky Survey (GASS, [3]), observed with the Parkes 64-m dish in Australia. EBHIS and GASS share similar angular resolution and match well in sensitivity. Combined, they represent the ideal successor to the Leiden/Argentine/Bonn Survey (LAB, [4]), which has been one of the most-used legacy HI datasets in the past two decades. HI4PI has much better angular resolution and sensitivity compared to LAB. Not surprisingly, the new survey data disclose a wealth of fine details in the Milky Way's gas distribution.

In our contribution, we discuss the quality of the HI4PI data sets and how one can obtain and work with them. Up to today, dozens of interesting studies have made use of HI4PI data and we are going to present some of the amazing results such as the detection of Galactic super-shells, a catalog of potential molecular-gas bearing intermediate-velocity clouds, or the creation of a beautiful new map of high-velocity clouds. Furthermore, the superior data quality of HI4PI allows to remove foreground contamination for cosmological studies.

HI4PI will be a prime resource for galactic HI, even when the upcoming SKA is fully operational, because it provides zero-spacing information. This will be necessary to add-in the larger angular scales into the high-resolution SKA data.

References

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