

# FAST Proposal Coverpage

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## **Project Name: FAST HI Intensity Mapping Pilot Survey**

*(A 1-line title for your project)*

## **Project Summary:**

*(A 1 paragraph summary of your project, including its scientific goals and how you will address them. This information will be potentially public.)*

The neutral hydrogen (HI) is known to trace the galaxies in the post-reionization era, an HI survey could provide valuable information for both cosmology and astrophysics research, and it is one of the main science cases for FAST. In intensity mapping (IM) observation the HI distribution is mapped without attempting to resolve individual galaxies, and it is a natural mode of observation for a single dish such as FAST. With the better sensitivity and higher angular resolution, FAST HI IM survey has the potential to make the first positive detection of HI IM auto-correlation. We propose to make a drift scan pilot survey, to test the idea and learn the relevant characteristics of FAST needed for designing a large HI IM survey. The proposed sky region overlaps with the SDSS field, so that cross correlation with optical survey is possible. The pilot survey may also provide information on nearby galaxies and clusters.