Title:	Atomic Hydrogen in Star-forming Galaxies at Intermediate Redshifts
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Abstract:	We have used the upgraded Giant Metrewave Radio Telescope to carry out a deep (117 on-source hours) L-band observation of the Extended Groth Strip, to measure the average neutral hydrogen (H i) mass and median star formation rate (SFR) of star-forming galaxies, as well as the cosmic H i mass density, at 0.2 < z < 0.4. This was done by stacking the H i 21 cm emission and the rest-frame 1.4 GHz radio continuum from 445 blue star-forming galaxies with M B ≤ −17 at z mean ≈ 0.34. The stacked H i 21 cm emission signal is detected at ≈7σ significance, implying an average H i mass of $ \langle {M}_{{\rm{H}}{\rm{I}}} \rangle =(4.93\pm 0.70)\times {10}^{9}\, {M}_{\odot }$. We also stacked the rest-frame 1.4 GHz radio continuum emission of the same galaxies to obtain a median SFR of (0.54 ± 0.06) M ⊙ yr−1; this implies an atomic gas depletion timescale of Δt H i = (≈9) Gyr, consistent with values in star-forming galaxies in the local universe. This indicates that the star formation efficiency does not change significantly over the redshift range 0–0.4. We used the detection of the stacked H i 21 cm emission signal to infer the normalized cosmic H i mass density (ρ H i /ρ c,0) in star-forming galaxies at z ≈ 0.34. Assuming the local relation between H i mass and absolute B-magnitude, we obtain ρ H i /ρ c,0 = (4.81 ± 0.75) × 10−4, implying no significant evolution in ρ H i /ρ c,0 from z ≈ 0.4 to the present epoch.
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