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Wavenumber measurement of lower hybrid waves using multiple RF magnetic probes on Alcator C-Mod[1] T. SHINYA, The University of tokyo, S.G. BAEK, G.M. WALLACE, S. SHIRAIWA, R.R. PARKER, D. BRUNNER, B. LABOMBARD, MIT Plasma Science and Fusion Center, Y. TAKASE, The University of Tokyo — RF magnetic probe was designed to measure parallel wavenumber ($k_{||} = n_{||}\omega/c$) of lower hybrid wave (LHW) on Alcator C-Mod. Experimental data from $k_{||}$ measurements provides useful information for understanding the $k_{||}$ up-shift/down-shift, mode conversion between LHW and fast wave, wave power loss mechanisms, etc. The probe was optimized using 3D electromagnetic simulation software, and had a flat sensitivity and a linear phase variation around 4.6 GHz. An array of the probes allows $k_{||}$ measurement up to 578 m^{-1} ($n_{||}$ up to 6). Propagation of the LHW from the LH launcher to the probes can be examined using GENRAY with a 2D SOL model. The rays with $n_{||} = 1.75$ or 1.7 (initial $n_{||}$) propagate nearly along the last closed flux surface, and reach probes. If the GENRAY calculation is correct, $n_{||}$ measured at probes should be 1.5-2.0. It would be physically interesting if the measured $n_{||}$ were much larger than 2. The experiment is scheduled on August, and the results will be presented.

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Takahiro Shinya
The University of tokyo

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