

## X12b Mapping a kpc-scale outflow and the ionized circumgalactic medium of an extremely metal-poor galaxy

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Local starburst dwarf galaxies, in particular, extremely metal-poor galaxies (EMPGs), defined as having metallicities of  $Z \leq 0.1 Z_{\odot}$ , are ideal laboratories to study feedback effects because of a shallow potential and hard ionizing spectrum. Simulations predict that such galaxies have galactic-scale outflows ionizing the surrounding circumgalactic medium (CGM), which could be an escape channel of LyC photons (e.g., Fujita et al. 2003; Wise et al. 2012). However, the phenomena and mechanisms have not yet been observationally confirmed and understood. So far, there is only one EMPG whose ionized CGM has been mapped with integral field spectroscopy with a large FOV, MUSE (SBS 0335-52E, Herenz et al. 2023). Recently, we discovered a kpc scale extended structure of ionized gas around another EMPG, J1044+0353 at  $z = 0.013$  ( $D = 59$  Mpc), with MUSE archival data. This talk will introduce the morphology and kinematics of CGM structures traced by  $H\alpha$  and [OIII]. One of the filamentary CGM structures seems to be connected to a bi-conical ionized structure located around a supercluster (with an age of  $\sim 19$  Myr, a stellar mass of  $\sim 4 \times 10^5 M_{\odot}$ , Peng et al. 2023). The kinematic analysis shows velocity offsets and elevated velocity dispersions inside the bi-conical ionized structure. It suggests that the supercluster is the launching point of a galactic-scale outflow, which creates the bi-conical ionized structure and then the filamentary structure on a CGM scale. We will discuss a phenomenological model that could explain the observed feature.