X32a MUSE view of outflows and the circumgalactic medium of extremely metal-poor galaxies: project descripton

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Simulations predict that the highly ionized medium surrounding low-mass, metal-poor galaxies is driven by outflows (e.g., Fujita et al. 2003). These outflows and ionized circumgalactic medium (CGM) can be traced by extended Hα emission (Hα halo). Recently, the CGM of an extremely metal-poor galaxy (EMPG), defined as having metallicities of $Z \leq 0.1\ Z_{\odot}$, has been observed with MUSE: SBS 0335-52E shows an Hα halo and a highly-ionized CGM filament along with an outflow, implying a leaking channel of ionizing photons (Herenz et al. 2023). Unfortunately, this single case does not tell us whether these outflows and ionized CGM are common among EMPGs. We need to observe EMPGs with a wide-field optical integral field unit, which allows us to capture large-scale CGM structures up to 10 kpc to 100 kpc in a single FoV. To investigate the CGM of all known starburst EMPGs with MUSE, we selected 21 targets at z = 0.008-0.09 from $\simeq$100 sources in a compiled catalog in Nakajima et al. (2022). Two of these sources have deep archival data. We proposed MUSE observations for the other 19 sources and were awarded 38 hours. Of the 19, 16 sources were observed, and we have 18 sources in total. In this talk, we would like to introduce the project details such as sample properties, observations, science cases, and early results of identifying Hα halos.