Title: **Probing highly ionized regions during reionization with the highest-redshift transmission spikes in the Lyman alpha forest**

During cosmic reionization, ionized regions grew and gradually overlapped in the intergalactic medium. The redshift and spatial distributions of ionized regions can thus directly reveal the timing and the topology of reionization, strongly informing the properties of the first luminous sources and the density field in the early universe. However, to date, the distributions of ionized regions at z>6.5 remain poorly constrained. High-redshift quasar spectra are powerful probes of these ionized regions, as highly ionized regions appear as transmission spikes in the Lyman series forest. We propose for HST WFC3/UVIS imaging to target the highest-redshift transmission spikes in the Lyman alpha forest. We will observe highly ionized regions at z>6.5 and high-redshift galaxies in the same field using FQ937N and F953N filters. HST WFC3/UVIS is the only narrow band instrument to image the transmission spikes at the proposed wavelength range without sky contamination. This program will provide exciting opportunities to verify the nature of the highest-redshift transmission spikes. This will yield critical evidence to constrain the timeline of reionization and to distinguish different reionization models. This program will additionally allow us to study the spatial correlation between highly ionized regions and high-redshift galaxies, shedding light on the ionizing background and the density field in the early universe. This will further provide a new pathway to investigate the contribution of galaxies to the ionization photon budget of reionization.