

Abstract Submitted  
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**A search for galaxies with nuclear gas disks for observation by the JWST** ALEXANDER LUTHERAN, JASON PINKNEY, Ohio Northern University — Studying the kinematics of the gas within galaxies allows one to determine the mass of the central supermassive black hole. High resolution images and long slit spectra are needed in order to start this process and the James Web Space Telescope (JWST) will play a crucial role in making the needed observations in the near future (2021 launch). The Near Infrared Spectrograph (NIRSpec) on the JWST has several suitable modes for gas kinematics. The most promising is the IFU (Integral Field Unit) with the G235H grating. We list emission lines that are produced by nuclear gas and also fall in the range of the best grating modes (G140H, G235H). Next we present a mosaic of optimal targets for the JWST. Starting with large surveys, we limited our results to early-type galaxies observed by the Hubble Space Telescope (HST) that have a detected nuclear dust disk, as dust disks imply the presence of a gas disk. We score and rank a refined list of over 30 galaxies, taking into consideration the dust morphology, distance, stellar velocity dispersion (used to calculate the black holes sphere of influence), detection of emission lines, and quality of existing data.

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