PyICs is a well-documented site and is specific to obtaining galactic bars. The pyICs spin_parameter was crucial for these results. Further, a custom density profile from the N. Muldavin thesis mentioned above was used. (Details can be found on the github site: N-body-group-Reed/isolated galaxy/Code) The parameter file required by ChaNGa can be written using a command line editor, and ChaNGa has some test parameter files. The ChaNGa wiki has a section on ChaNGa options for the parameter file. Also see Michela Mapelli’s website (http://web.pd.astro.it/mapelli/lectures.html) for help on understanding these options. Finally, the visualization of the present work was achieved using the python code [A. Pontzen, R. Roskar, G. S. Stinson, R. Woods, and T. R. Quinn, pynbody: Astrophysics Simulation Analysis for Python Astrophysics Source Code Library, ascl: 1305:002 (2013)] on the pynbody github site. This series of Python programs is outstanding for this purpose, well-documented and extensive. (The NSF XSEDE Comet help-desk contributed to completing this project.)

Gas interior to the bar of the Milky Way has recently been discovered with the Wisconsin H-Alpha Mapper (WHAM) to be the closest example of a Low Ionization (Nuclear) Emission Region — LI(N)ER — in the universe. To better understand the nature...
of this gas, a sample of face-on galaxies with integral field spectroscopy are used to study the ionized gas conditions of barred and nonbarred galaxies, focusing on those that are most similar to the Milky Way. Strong optical line emission of [NII] λ6584, Hα λ6563 [OIII] λ5007, and Hβ λ4863 are used to diagnose the dominant ionization mechanisms of gas across extragalactic systems and the Galaxy via Baldwin-Phillips-Terlevich (BPT) Diagrams. Barred galaxies show strong suppression of star formation and an increase in composite and LI(N)ER like spectra in their inner regions when compared with similar nonbarred counterparts. This effect is lessened in galaxies of very low (log\(\frac{M_{*}}{M_\odot}\)) > 11.1) total stellar mass. Bar masks from Galaxy Zoo:3D show the bar's non-axisymmetric effect on the ionized gas and help predict the face-on distribution of ionized gas conditions near the bar of the Milky Way. When combined with multi-wavelength observations and models of the Milky Way, this extragalactic insight will create a more complete picture of the transition region between the CMZ, Fermi Bubbles, and the Galaxy at large while providing a measure of the large scale feedback from the central SMBH.

182.03 — Galaxy Bridges on FIRE
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Galaxy bridges and tails are the hallmark of the most spectacular galaxy-galaxy interactions in the night sky. In this work, we investigate the physics behind the formation and evolution of galactic bridges. We employ a suite of 21 high-resolution galaxy merger simulations, which rely on the novel “Feedback In Realistic Environments” (FIRE) model. This model is capable of resolving individual Giant Molecular Clouds, and of capturing the small-scale physics of the interstellar medium. With this framework, we can investigate how bridges are formed, their extent and duration, the amount of in-situ star formation within them, and the importance of stellar and gaseous migration as these features form. Our key science goal is to determine which orbital parameters controlling our mergers drive in-situ star formation, stellar migration and, mass transfer. Future work includes a thorough comparison with low redshift systems, to determine the relative importance of bridges in galaxy evolution.

182.04 — Galaxy Formation in Quasar Field during Reionization
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Recent observations found many z ~ 6 quasar fields lack galaxies. This unexpected lack of galaxies may potentially be explained by quasar radiation feedback. Here I present a suite of 3D radiative transfer cosmological simulations of quasar fields. I find that quasars suppress star formation in low mass galaxies, mainly by photo-dissociating their molecular hydrogen. Photo-heating also plays a role, but only after ~100 Myr. However, galaxies which have stellar mass above 10\(^5\) M\(_\odot\) when the quasar turns on will not be suppressed significantly. Quasar radiative feedback suppresses the low end of the galaxy luminosity function (LF), but the degree is far less than the field to field variation of the LF. My study also suggests that using the number of bright galaxies (M\(_{1500}\) < -16) around quasars, we can potentially recover the underlying mass overdensity, which allows us to put reliable constrains on quasar environments.

182.05 — Galaxy And Mass Assembly: A Comparison between Galaxy-Galaxy Lens Searches in KiDS/GAMA
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Strong gravitational lenses are a rare and instructive type of astronomical object. Identification has long relied on serendipity, but different strategies- such as mixed spectroscopy of multiple galaxies along the line of sight, machine learning algorithms, and citizen science- have been employed to identify these objects as new imaging surveys become available. We report on the comparison between spectroscopic, machine learning, and citizen science identification of galaxy-galaxy lens candidates from independently constructed lens catalogs in the common survey area of the equatorial fields of the Galaxy and Mass Assembly (GAMA) survey. In these, we have the opportunity to compare high-completeness spectroscopic identifications against high-fidelity imaging from the Kilo Degree Survey (KiDS) used for both machine learning and citizen science lens searches. We find that the three methods - spectroscopy, machine learning, and citizen science - identify 85, 69