



Illuminating Galactic Fuel Supplies & Star Formation Efficiencies with MaNGA, HI-MaNGA, & Future Surveys

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Galaxies run on gas. This material, initially warm and diffuse, cools and contracts into dense clouds to form new stars. For this reason, a complete model of how galaxies assemble revolves heavily on understanding the physical processes that regulate the amount and internal conditions (e.g., density, temperature) of gas within galaxies. I will talk about two major astronomical surveys I am currently using to investigate this important galaxy component: the SDSS-IV MaNGA survey, an optical spectroscopic survey of 10,000 galaxies in the nearby universe, and HI-MaNGA, a program to measure the atomic hydrogen content (via 21 cm emission) in all MaNGA galaxies using the Green Bank Telescope. I will highlight recent results from the HI-MaNGA team that illuminate the efficiency with which galaxies process their gas reservoirs into stars, including the influence of supermassive black holes, interactions between galaxies, and internal galaxy conditions. I will finish by discussing plans for a new recently approved GBT program to probe the densest gas within galaxies, allowing us to more effectively study the formation of dense star-forming clouds and active star formation.

Monday, December 6 3:00 p.m. Taylor 111