ID de Contribution: **72** Type: **Oral presentation**

Investigating Galactic Fountain Effects in M101 with SITELLE, THINGS, and GALEX

mercredi 9 avril 2025 10:00 (15 minutes)

Stellar feedback redistributes gas in galaxies, shaping their star formation histories and the structure of the interstellar medium (ISM). Most previous studies of feedback-driven gas flows have focused on edge-on galaxies or examined only some of the wavelengths in the electromagnetic spectrum, limiting the ability to trace the full star formation cycle. Here, we present a multi-wavelength analysis of the nearly face-on spiral galaxy M101, using CFHT SITELLE (0.8″ resolution) for ionized gas, THINGS for HI (6”resolution), and GALEX for UV emission (5″ resolution). The low inclination of M101 provides a unique advantage by minimizing line-of-sight projection effects for the gas ejected above the plane, allowing us to directly identify HI holes and assess whether they coincide with young stellar populations and ionized gas outflows. Previous works have identified dozens of HI holes in M101, spanning a wide range of sizes and including a super-bubble, some of which are accompanied by high-velocity HI shells. This large variety corresponds both to a range of energy and age of the ejection phenomenon. By combining all three tracers, we can quantify the link between past or ongoing star formation, stellar feedback, and the recycling of gas in the ISM. The HII regions detected by SITELLE trace the recent star formation (10 Myr), the UV emission may trace star formation bursts up to 100 Myr, and HI holes larger than 1kpc trace bursts older than 100 Myr. Their spatial correlations provide insights into the timescales of different feedback phases.

Astrophysics Field

galaxies, observations, feedback

Authors: ANITHA SHAJI, Aashiya (LUX, Sorbonne University and Paris Observatory); COMBES, Francoise (Observatoire de Paris)

Orateur: ANITHA SHAJI, Aashiya (LUX, Sorbonne University and Paris Observatory)

Classification de Session: Session 1

Classification de thématique: Astrophysics