

# Turbulent, magnetized, ionized gas in the galaxy

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Room 184 Nieuwland Science Hall

Diffuse photoionized gas is pervasive in star-forming galaxies. I will present observations of the southern Milky Way with the Wisconsin H-Alpha Mapper. The physical conditions in the diffuse warm ( $\sim 10^4$  K) ionized medium are distinct from those in classical H II regions.

Numerical simulations indicate that the warm ionized medium is a natural consequence of feedback from massive stars: supernovae drive turbulence and establish a multi-phase interstellar medium, while O stars can readily photoionise gas more than a kpc from the disk. I will also present observations of Faraday rotation due to magnetic fields in ionized gas in the Smith Cloud, a high velocity cloud interacting with the Galactic disk. Magnetic fields may stabilize clouds like this against disruption, allowing the gas to reach galactic disks.