6. Interstellar Medium
Aging low-mass stars eject their outer layers.
Winds from high-mass stars blow bubbles of hot gas.
Supernova blast waves expand into interstellar space.
Elements made in stars are mixed back into the gas.
Bubbles blown by high-mass stars burst out of the disk.
The gas cools and falls back into the galaxy.
Cooling gas forms clouds of atomic and then molecular H.

\[ p^+ + e^- \rightarrow H \]

\[ H + H \rightarrow H_2 \]
Stars form in molecular clouds, and the cycle repeats.
Galactic Recycling Summary

• Stars fuse hydrogen, making heavier elements.

• Dying stars expel hot ($T \sim 10^6$ K) bubbles of gas.

• As gas cools ($T \sim 10^4$ K), hydrogen atoms recombine.

• Further cooling ($T \sim 30$ K) allows molecules to form.

• Gravity forms new stars in molecular clouds.