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TITLE: Outflows in massive star forming regions: UV radiation and shocked cavity walls toward AFGL 2591

ABSTRACT BODY:

Abstract Body: Outflows can play an important role in regulating the star formation process. These outflows have the potential to deposit significant energy to large distances from the protostar through material motion and shocks, as well as via radiation through the subsequent outflow cavity. Herschel observations of high-J CO lines toward massive star-forming regions such as AFGL 2591 show line strengths that appear to be inconsistent with a spherical envelope. Following recent work on low-mass star forming regions, we construct a model whereby the excited molecular line emission originates in a shocked + UV irradiated outflow cavity wall. The validity of the cavity wall model in this context is considered. The observational data are then used to constrain the model, including the type of shocks, and relative strength of shocks versus radiation.

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