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Carl Gardner and **Branche Hudzietz*** (bphudzie@asu.edu). *Molecular Radiative Cooling in Astrophysical Jet Simulations*. Preliminary report.

We investigate the radiative energy loss of several molecular compounds present in stellar nursery molecular clouds for the purpose of improving astrophysical jet simulations. The compounds H_2 , H_2O , and CO were examined due to their relatively high abundance in regions similar to the Eta Carina nebula. A molecular cooling model from the literature was utilized to approximate the rotational and vibrational transitions of these three compounds under collisional excitation. We found that molecular cooling is an important factor for jet/cloud interactions in the low temperature regime ($T < 10,000K$), when compared to the atomic cooling in our existing model. (Received September 25, 2012)