MOLECULAR OUTFLOWS FROM MASSIVE PROTOSTARS

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We carried out high-resolution ($\sim 3''$) observations of 4 massive protostars in a bunch of molecular lines and 3 mm continuum using the BIMA array. Single compact ($\sim 2'$), poorly collimated bipolar molecular outflows are seen in low-resolution ($\sim 30''$) single-dish maps of the 4 regions. But our BIMA array maps show multiple outflows in each region. The individual outflows have distinctly separated blue- and red-lobes and are better collimated than those seen in the single-dish maps. This result suggests that the poor collimation of massive molecular outflows shown by most previous single-dish studies may be caused by a combination of multiple outflows and/or low resolution. We will discuss the implications for massive star formation.