DRAFT VERSION SEPTEMBER 12, 2023
Typeset using LaTeX **twocolumn** style in AASTeX631

A Cool Paper About Superbubbles

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ABSTRACT

My cool abstract

Keywords: keywords

1. INTRODUCTION

2. CONCLUSION

REFERENCES

Mac Low, M.-M., & McCray, R. 1988, ApJ, 324, 776, doi: 10.1086/165936

Weaver, R., McCray, R., Castor, J., Shapiro, P., & Moore, R. 1977, ApJ, 218, 377, doi: 10.1086/155692

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APPENDIX

A. IMPORTANT TIMESCALES

A.1. *Radiative Cooling of the Hot Interior*

When the hot interior of a bubble cools will be critical in determining when a bubble transitions from an adiabatic, energy conserving evolution to a momentum conserving one. A number of different works have determined different values for this, and we provide a brief survey of them as follows.

Mac Low & McCray (1988) provides in their equation 14 an approximation based on the analytic calculations of Weaver et al. (1977):

$$t_{cool} = (16\,\mathrm{Myr}) \left(\frac{Z}{Z_\odot}\right)^{-35/22} L_{38}^{3/11} n_0^{-8/11} \tag{A1}$$

Where the ambient density n_0 is given in $m_p\ \mathrm{cm}^{-3}$, and L_{38} is the mechanical luminosity in $10^{38}\ \mathrm{erg\,s}^{-1}$.