

WORKING TITLE: IMPROVING DARK MATTER AXION SEARCHES WITH ACTIVE RESONATORS

G. RYBKA, A. MALAGON, L. MCBRIDE, K. PATEL

1. INTRODUCTION

1.1. **Axions, Dark Matter, and Microwave Cavities.**

1.2. **Technological Limitations, Overcoming them with Active Resonators.**

2. SCHEMATIC

PUT IN SCHEMATIC PLOT

3. THEORY

3.1. **Derive multiplicative factor to gain.**

(1) three port S matrix

(2) multiplicative factor

3.2. **Literature Review.** MENTION ARMSTRONG, MARK JONES SHOULD WE
MENTION DISAGREEMENT BETWEEN ISAKAWA and ITALIAN?

4. SNR AND BANDWIDTH

(3) SNR expression

(4) FIGURE OF MERIT, ACCOUNTING FOR REDUCTION IN BW

5. MEASUREMENTS

5.1. **Results.**

5.2. **Comparison with Simulation.**

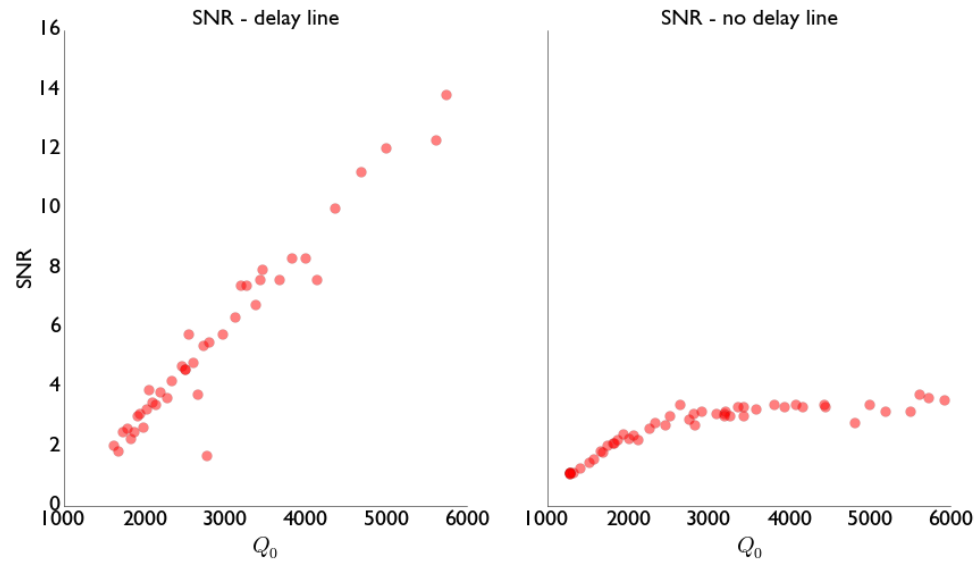


FIGURE 1

6. DISCUSSION

7. WILD SPECULATION

8. BIBLIOGRAPHY