# Abstract

Problem:

Approach:

Solution:

Main contributions:

# Introduction

What is the problem?- The data has noise, more than we would expect for the conditions, and it follows a trend that we were not anticipating.

Why is it interesting and Important- noise reduction is important both for instrument performance and for determining optimal running conditions on the system.

Why is it hard? Why do naïve approaches fail? – We attempted to eliminate all reasonable sources of noise, but still are seeing the same behavior so we need to know if this noise is statistically significant before we go any further.

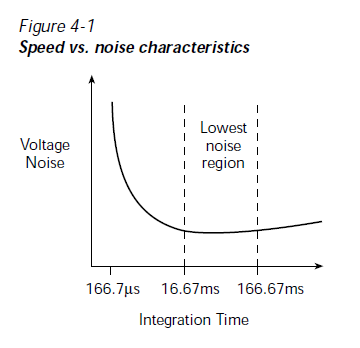
Why hasn’t it been solved before? What was wrong with the previous proposed solutions? How Does mine differ?

What are the key components of my approach & results. Also include any specific limitations

Summary of Contributions

Related work (if applicable)

# Noise in Emitter Measurements:

As part of an ongoing project to optimize a new type of emittance scanner for a Plasma Ion Source the rate of sampling was characterized to ensure optimal sampling rate was chosen to ensure minimum time spend during data collection without effecting sample reliability. A number of observations were made during this characterization; the time to take data was not effected by rate selection, the noise of the sample increased when increasing the rate selection. Our anticipated behavior came from the following chart, available in the Keithley 6487 maunal, the entry of interest included in the appendix material of this report.

We have the data to look at sampling on different days with the same PLC, as well as on the same day with different PLC levels.

# Conclusions

# Future Work

# Acknowledgements

Citations

appendices