**Intro to gas analysis and chemometrics**

**Experimental setup**

Describe system a.d.h.v. figure

Use Adonis’ paper, Zhe’s thesis, questionspaper

**Concentration and compound determination**

Wavenumber calibration – sound system calibration

H2O & CO2 calibration

Acetone and other molecules determination

Finding p-values

Determine compounds with high intensity in regions of low p value

**Clustering and classification**

Got 80% accuracy on sorting healthy vs. asthmatic using SVM

**Discussion**

Cause of noise (in rawest signal): Thermal fluctuations expand laser box(, causing different wavelengths to be stable and emitted, seen in the signal as intensity fluctuations [source: Adonis]). Piëzo hysteresis causes wavenumber shift. Mode-hopping is caused by Piëzo+grating allowing short periods were multiple wavelengths are supported[source: Adonis]. Mode-hopping is also caused by random gass fluctuations?

Optional

Get NEC as in Florian’s paper