Extinction Law

Let's take a look at the extinction laws that we can use to de-redden the young stars in Cep Ob3b. The three main laws are the Rieke and Lebofsky (1985), the Cardelli, Clayton, and Mathis (1989), and Allen et al. (2014) link. The Allen et al. 2014 law was derived from misclassified spectral types.

We will make use of the reticulate package. Note, we are defining the python engine in the R setup chunk.

```
#devtools::install_github("rstudio/reticulate")
library(reticulate)
use_python("/anaconda3/bin/python")
library(readr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
```

Let's quickly check which version of python we are using. I shoud be usng 3.6.x.

```
import sys as sys
print(sys.version)
```

```
## 3.6.4 |Anaconda, Inc.| (default, Jan 16 2018, 12:06:34)
## [GCC 4.2.1 Compatible Clang 4.0.1 (tags/RELEASE_401/final)]
```


Allen, T. S., J. J. Prchlik, S. T. Megeath, R. A. Gutermuth, J. L. Pipher, T. Naylor, and R. D. Jeffries. 2014. "An Anomalous Extinction Law in the Cep OB3b Young Cluster: Evidence for Dust Processing During Gas Dispersal." *Apj* 786 (May): 113. doi:10.1088/0004-637X/786/2/113.

Cardelli, J. A., G. C. Clayton, and J. S. Mathis. 1989. "The Relationship Between Infrared, Optical, and Ultraviolet Extinction." *Apj* 345 (October): 245–56. doi:10.1086/167900.

Rieke, G. H., and M. J. Lebofsky. 1985. "The Interstellar Extinction Law from 1 to 13 Microns." *Apj* 288 (January): 618–21. doi:10.1086/162827.