## A Closer Look at Some Gas-Phase Depletions in the ISM: Trends for O, Ge and Kr vs. F<sub>\*</sub>, f(H<sub>2</sub>) and Starlight Intensity

Edward B. Jenkins

## Princeton University Observatory

- Archival spectra of 100 stars recorded by STIS on HST --1. vields column densities of O I, Ge II, Kr I, Mg II, Mn II and H I. FUSE spectra were used to obtain  $N(H_2)$ . Sample spectrum Flux 2. <u>Partial</u> correlations of abundances relative to H<sub>total</sub> were investigated for the trends with  $F_*$ , log  $f(H_2)$  and log  $I/I_0$ . Generalized depletion parameter Fraction of hydrogen in molecular form  $0^{\Box}_{1235}$ Relative starlight intensity 3. Outcomes for gas-phase abundances:  $O/H_{total}$  shows positive correlations with  $\log f(H_2)$ and  $\log I/I_0$ , and a negative correlation with  $F_*$ .
  - 2. Kr/H<sub>total</sub> shows a positive correlation with  $\log f(H_2)$  and negative correlations with  $\log I/I_0$  and  $F_*$ .
  - 4. Interpretations:
    - 1. Negative correlations with  $F_*$  indicate O and Kr deplete along with other elements (although less rapidly no surprise here)
    - 2. There is more gas-phase O when  $\log I/I_0$  increases,  $\frac{1}{20}$   $\frac{1}{000}$  perhaps this is caused by photodesorption of O bound onto grains. The increase with  $\log f(H_2)$  is  $\frac{1}{20}$   $\frac{1}{100}$  may be due to ionization.

