Ay190 – Worksheet 5

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Linear Fitting

For convenience, I plot all the data and curves on a single plot.

(a) See the data point on Figure 1.

(b) The dashed line on Figure 1 shows the linear fitting without consideration of uncertainty of measurement. The result is $\log(M_{\rm BH}) = 0.931 + 2.925\log(\sigma_*)$, in which $M_{\rm BH}$ is in unit of $M_\odot$ and σ_* in km s^{-1}. While in Greene & Ho (2006), their best fitting is $\log(M_{\rm BH}) = -0.64 + 3.69\log(\sigma_*)$ (Dash-dot line in Figure 1). The difference is not significant.

(c) See the solid line in Figure 1. The result is $\log(M_{\rm BH}) = 0.342 + 3.232\log(\sigma_*)$

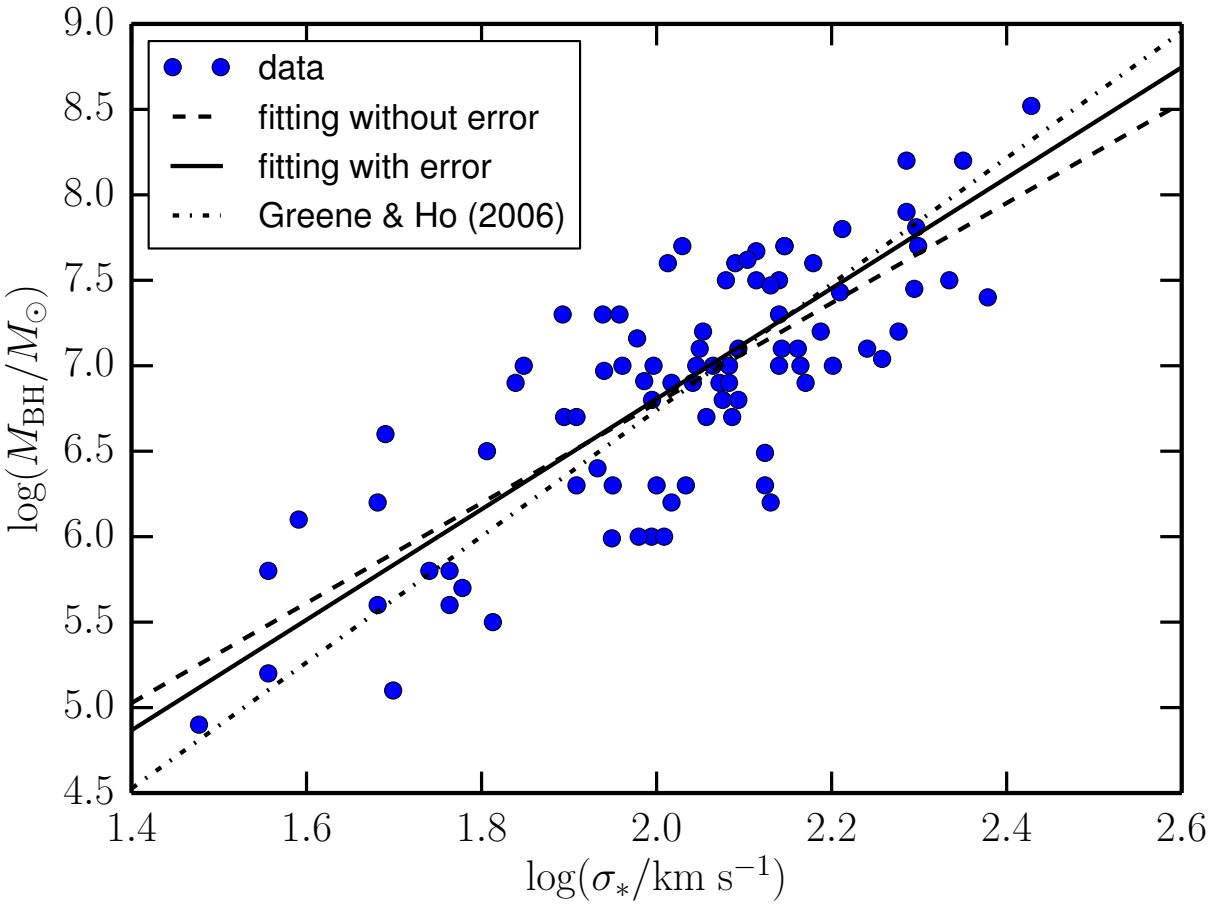

Figure 1: Linear Fitting