Characterize CCD Derivation

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1 Introduction

$$\frac{\sigma_e}{N_e} = \sqrt{\frac{\sigma_{ADU}^2}{N_{ADU}^2} + \frac{\sigma_g^2}{g^2}} \tag{1}$$

$$\frac{\sigma_e^2}{N_e^2} = \frac{\sigma_{ADU}^2}{N_{ADU}^2} + \frac{\sigma_g^2}{g^2} \tag{2}$$

The uncertainty on the gain is zero and N_e**=**$N_{ADU} * g$.

$$\frac{\sigma_e^2}{(N_{ADU} * g)^2} = \frac{\sigma_{ADU}^2}{N_{ADU}^2} \tag{3}$$

$$\sigma_e^2 = \sigma_{ADU}^2 * g^2 \tag{4}$$

$$\sigma_e = \sigma_{ADU} * g \tag{5}$$