

# Thermal Emission Spectrum for the Ultra-Hot Jupiter WASP-33b

LAURA KREIDBERG<sup>1,2</sup>

<sup>1</sup>*Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138*

<sup>2</sup>*Harvard Society of Fellows, 78 Mount Auburn Street, Cambridge, MA 02138*

Submitted to AJ

## ABSTRACT

WASP-33b is hot.

*Keywords:* planets and satellites: individual (WASP-33b), planets and satellites: atmospheres

### 1. INTRODUCTION

Ultra hot planets.  
WASP-33b.

### 2. OBSERVATIONS

We observed WASP-33b with the Wide Field Camera 3 (WFC3) instrument on *HST* for GO Program 15109 (PI: L. Kreidberg). The observations were obtained over five consecutive orbits of the telescope. At the beginning of each orbit, we acquired a direct image of the star with the F139M filter to establish a zero-point for wavelength calibration. The subsequent exposures used the G102 grism to obtain time-series spectra over the wavelength range  $0.8 - 1.1 \mu\text{m}$ . For the spectroscopy, we used “round-trip” spatial scanning mode, which scans

the telescope in the spatial direction back and forth across the detector. This mode enables long exposures for bright targets that quickly saturate in traditional staring mode (compare ??). The G102 exposures used the SPARS10 readout pattern with NSAMP = 9 (for a total exposure time of 83 s). The scan rate was 0.343 arcsec/sec scan rate. This setup yielded a scan height of 170 pixels and maximum per pixel counts to below 30k electrons.

### 3. DATA REDUCTION AND ANALYSIS

#### 3.1. Comparison with ?

We also reanalyzed

#### 3.2. Companion Star

## REFERENCES