JAMES KIRK

Physics xxx-xx: Fundamentals of Physics Lab x: Experimental Physics Laboratory

June 11, 2015

Example Latex Physics Lab Report

JAMES KIRK, JOHN SMITH, AND ADAM WEST

Department of Physics & Astronomy, University of Notre Dame, South Bend, IN 46556 jkirk@nd.edu, jsmith@nd.edu, awest@nd.edu

Abstract: Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Submitted: June 11, 2015

1 Introduction

Here I can write the introduction and background to my lab report. I can cite my sources as (Hunter, 2007) and (Meyer et al., 2012). I can also cite together (Meyer et al., 2006; Peek et al., 2011).

Give an empty line to start a new paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift - not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

2 Experimental Methods

I can also include subsections. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

2.1 Equipment Setup

To include a figure within the two column environment use "Figure". To include a figure that spans the two column format, use "figure*". Now I can references my figures as

Figure 1 and Figure 2. LATEX will decide where to put the figures for me.

Some more blank text – Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

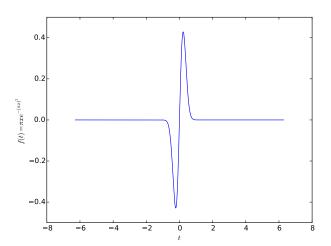


Figure 2: A blind text like this gives you information about the selected font, how the let- ters are written and an impression of the look. This text should contain all letters of the alpha- bet and it should be written in of the original lan- guage. There is no need for special content, but the length of words should match the language.

2.2 Experimental Procedure

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is

there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

3 Data and Analysis

To include a table within the two column environment use "Table". To include a table that spans the two column environment use "threeparttable".

Table 1: Table of Drake Equation Parameters.

- *R* Average star production rate.
- f_g Fraction of stars that are single F, G, or K dwarfs.
- f_p Fraction of stars with planets.
- n_e Number of suitable planets per star.
- f_L Fraction of suitable planets which evolve life.
- *f*_i Fraction of life bearing planets which develop intelligent life.
- f_c Fraction of planets with intelligent life which develop a technological civilization.
- H_c Characteristic time for evolution of a civilization.
- H_* Characteristic decay time for galactic star formation rate.

4 Discussion

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text

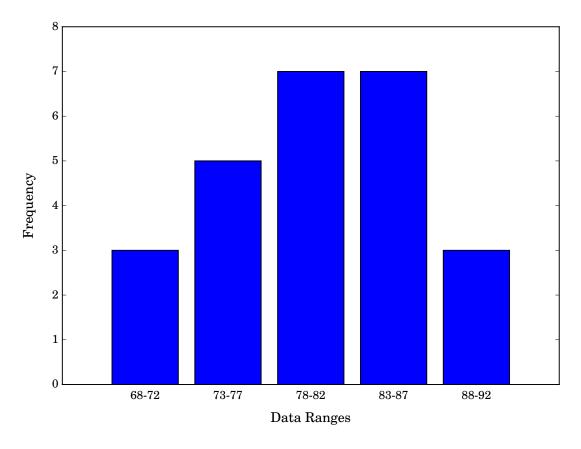
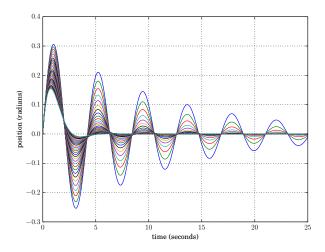


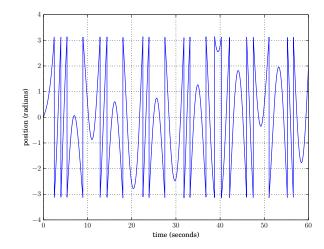
Figure 1: Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift - not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

5 Conclusions

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression





(a) Variation of Drag Coefficient

(b) Variation of Amplitude gives Period Doubling

Figure 3: Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Acknowledgements

Don't forget to acknowledge those who have contributed to your work! Hello, here is some text without a meaning.

This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

References

Astropy Collaboration, T. P. Robitaille, E. J. Tollerud, P. Greenfield, M. Droettboom, E. Bray, T. Aldcroft, M. Davis, A. Ginsburg, A. M. Price-Whelan, W. E. Kerzendorf, A. Conley, N. Crighton, K. Barbary, D. Muna, H. Ferguson, F. Grollier, M. M. Parikh, P. H. Nair, H. M. Unther, C. Deil, J. Woillez, S. Conseil, R. Kramer, J. E. H. Turner, L. Singer, R. Fox, B. A. Weaver, V. Zabalza, Z. I. Edwards, K. Azalee Bostroem, D. J. Burke, A. R. Casey, S. M. Crawford, N. Dencheva, J. Ely, T. Jenness, K. Labrie, P. L. Lim, F. Pierfederici, A. Pontzen, A. Ptak, B. Refsdal, M. Servillat, and O. Streicher. Astropy: A community Python package for astronomy. *A&A*, 558:A33, Oct. 2013. doi: 10.1051/0004-6361/201322068.

- A. Baranne, D. Queloz, M. Mayor, G. Adrianzyk, G. Knispel, D. Kohler, D. Lacroix, J.-P. Meunier, G. Rimbaud, and A. Vin. ELODIE: A spectrograph for accurate radial velocity measurements. *Astronomy and Astrophysics Supplement*, 119:373–390, Oct. 1996.
- J. D. Hunter. Matplotlib: A 2d graphics environment. *Computing In Science & Engineering*, 9(3):90–95, 2007.
- E. Jones, T. Oliphant, P. Peterson, et al. SciPy: Open source scientific tools for Python, 2001—. URL http://www.scipy.org/. [Online; accessed 2015-06-07].
- age for astronomy. *A&A*, 558:A33, Oct. 2013. doi: D. M. Meyer, J. T. Lauroesch, C. Heiles, J. E. G. Peek, 10.1051/0004-6361/201322068. and K. Engelhorn. A Cold Nearby Cloud inside the

Scale⁴ Telescope $ExpT^2$ RMS³ **UT** Date Filter # Data $MORC^1$ 2009-11-05 r'100 160 1.3 1.32 r'**MORC** 2009-11-28 134 100 1.0 1.33 r'**MORC** 2010-01-13 123 100 1.1 1.24 2010-01-14 **MORC** g'151 100 1.2 1.46 **MORC** 2010-11-09 r'129 100 1.2 1.70 r'**MORC** 2010-11-10 119 100 0.9 1.29 **MORC** 2011-02-11 r'138 100 0.9 1.22 **MORC** 2011-12-08 **CBB** 148 100 0.9 1.30 2012-02-27 167 **MORC** r'100 1.0 1.31 2012-02-28 r'135 1.2 **MORC** 100 1.43 2012-03-10 r'148 1.40 **MORC** 100 1.2 **MORC** 2012-11-18 r'135 100 1.0 1.26 **MORC** 2012-12-12 r'139 100 1.0 1.09 **MORC** 2012-12-23 r'180 100 1.1 1.27 r'**MORC** 2013-01-05 160 1.1 1.20 100 2013-01-27 r'194 **MORC** 100 1.3 1.07 **MORC** 2013-11-11 V93 100 1.3 1.15 **MORC** 2013-12-28 r'167 100 1.1 1.40 **MORC** 2014-01-20 r'181 100 1.1 1.25 **MORC** 2014-12-21 r'201 100 1.4 1.34 r'**MORC** 2015-01-01 150 100 1.9 1.20 r'**MORC** 2015-02-06 217 100 1.3 1.10 **MORC** 2015-02-07 r'138 100 1.1 1.20

Table 2: Summary of WASP-12b Photometric Observations

10.1086/508658.

- D. M. Meyer, J. T. Lauroesch, J. E. G. Peek, and C. Heiles. The Remarkable High Pressure of the Local Leo Cold Cloud. ApJ, 752:119, June 2012. doi: 10.1088/0004-637X/752/2/119.
- J. Moultaka, S. A. Ilovaisky, P. Prugniel, and C. Soubiran. The ELODIE Archive. The Publications of the Astronomical Society of the Pacific, 116:693-698, July 2004. doi: 10.1086/422177.
- J. E. G. Peek, C. Heiles, K. M. G. Peek, D. M. Meyer, and J. T. Lauroesch. The Local Leo Cold Cloud and New Limits on a Local Hot Bubble. *ApJ*, 735:129, July 2011. doi: 10.1088/0004-637X/735/2/129.

- Local Bubble. ApJL, 650:L67-L70, Oct. 2006. doi: P. Prugniel, C. Soubiran, M. Koleva, and D. Le Borgne. New release of the ELODIE library: Version 3.1. ArXiv Astrophysics e-prints, Mar. 2007.
 - B. D. Savage and K. R. Sembach. The analysis of apparent optical depth profiles for interstellar absorption lines. ApJ, 379:245–259, Sept. 1991. doi: 10.1086/170498.
 - S. van der Walt, S. C. Colbert, and G. Varoquaux. The numpy array: A structure for efficient numerical computation, 2011.
 - M. Wenger, F. Ochsenbein, D. Egret, P. Dubois, F. Bonnarel, S. Borde, F. Genova, G. Jasniewicz, S. Laloë, S. Lesteven, and R. Monier. The SIMBAD astronomical database. The CDS reference database for astronomical objects. A&AS, 143:9–22, Apr. 2000. doi: 10.1051/aas:2000332.

¹ MORC=U. of Louisville Moore Obs. 0.6 m RCOS telescope

² Exposure time in seconds

³ RMS in units of 10⁻³

⁴ Error scaling factor