

Muon induced secondary electrons at the KATRIN experiment Detector installation and setup and data analysis

Diploma Thesis of

Philipp Rovedo

At the Department of Informatics IKP - Institut fuer Kernphysik - KIT Karlsruhe

Reviewer: Prof. Dr. Guido Drexlin

Second reviewer: Prof. Dr. Ulrich Husemann

Advisor: Nancy Wandkowsky

Second advisor: ?

Duration:: September 27th 2012 - September 27th 2013

I declare that I have developed and written the enclosed thesis completely by myse have not used sources or means without declaration in the text.	elf, and
PLACE, DATE	
(YOUR NAME)	
(100111111111)	

Contents

ı.	Introduction	1
	1.1. The standard model	1
	1.2. Massive neutrinos	1
	1.3. The KATRIN experiment	1
	1.4. Cosmic air showers	1
	1.5. Muon interaction with matter	1
2.	The muon detection system	3
	2.1. Scintillators	3
	2.2. Photomultipliers	3
3.	Data aquisition crate	5
	3.1. First level trigger cards	5
	3.2. Second level triger cards	5
4.	Orca control	7
	4.1. Software Gains and Thresholds	7
	4.2. Run control	7
	4.3. File handling	7
	4.4. Orca Fit	7
5.	Conclusion	9
6.	Outlook	11
Bil	oliography	13
Αp	pendix	15
	A First Appendix Section	15

1. Introduction

- 1.1. The standard model
- 1.2. Massive neutrinos
- 1.3. The KATRIN experiment
- 1.4. Cosmic air showers
- 1.5. Muon interaction with matter
- 1.6.

[BKR09] ...

2. The muon detection system

- 2.1. Scintillators
- 2.2. Photomultipliers

3. Data aquisition crate

3.1. First level trigger cards $^{\mathrm{asdf}}$

3.2. Second level triger cards

4. Orca control

- 4.1. Software Gains and Thresholds
- 4.2. Run control
- 4.3. File handling
- 4.4. Orca Fit

5. Conclusion

6. Outlook

. . .

Bibliography

[BKR09] S. Becker, H. Koziolek, and R. Reussner, "The Palladio component model for model-driven performance prediction," vol. 82, pp. 3–22, 2009. [Online]. Available: http://dx.doi.org/10.1016/j.jss.2008.03.066

Appendix

A. First Appendix Section

ein Bild

Figure A.1.: A figure

. . .