#### Search for New Physics in Events with Jets and Missing Transverse Momentum at the CMS experiment

Dissertation

zur Erlangung des Doktorgrades

des Fachbereichs Physik

der Universität Hamburg

vorgelegt von

Kristin Goebel geb. Heine

aus Gifhorn

Hamburg 2014

Gutachter der Dissertation: Prof. Dr. bla

Prof. Dr. bla

Gutachter der Disputation: Prof. Dr. bla

Prof. Dr. bla

Datum der Disputation: ??. ?? 2014

Vorsitzender des Prüfungsausschusses: Dr. bla

Vorsitzender des Promotionsausschusses: Prof. Dr. bla

Leiterin des Fachbereichs Physik: Prof. Dr. bla

Dekan der Fakultät für Mathematik,

Informatik und Naturwissenschaften: Prof. Dr. bla

## Contents

I	Introduction	1
2	The Standard Model and Possible Extensions	2
3	Experimental Setup	3
4	Reconstruction and Performance of Jets at CMS	4
5	Measurement of the Jet Transverse-Momentum Resolution	5
6	Search for New Physics with Jets and Missing Transverse Momentum	6
7	Prospects for a Search for Top Squarks	7
R	Conclusions	8

## 1 Introduction

blabla bla [1]

# 2 The Standard Model and Possible Extensions

## 3 Experimental Setup

4 Reconstruction and Performance of Jets at CMS

## 5 Measurement of the Jet Transverse-Momentum Resolution

6 Search for New Physics in the Multijet and Missing Transverse Momentum Final State

7 Prospects for a Search for Top Squarks in Events with Jets and Missing Transverse Momentum

#### **8 Conclusions**

## **Bibliography**

K. Nakamura and et al. (Particle Data Group), "Review of particle physics", J. Phys. G 37 (2010, and 2011 partial update for the 2012 edition) 075021.
 doi:10.1088/0954-3899/37/7A/075021.