



Altan ÇAKIR

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Objective

- I completed my graduate(M.Sc) education in **Theoretical High Energy and Particle Physics** programme of **Izmir Institute of Technology**, Izmir, Turkey by July 2006. My M.Sc. thesis was in the field of particle physics and experiments and is based on "**Supersymmetry Phenomenology and Flavor Physics**". In order to continue my researches and improve my knowledge with experimental SUSY search, I do my **PhD** study in the field of **SUSY** search in **CMS collaboration** under supervision **Prof.Dr. Wim de BOER** in **Institut fuer Experimentelle Kernphysik (IEKP), Karlsruhe Institute of Technology**. My Ph.D thesis is in the field of experimental high energy and particle physics is based on "Generators comparisons for LHC physics and Sherpa background studies and Systematical Uncertainties for SUSY searches in CMS at $\sqrt{s}=10$ TeV"

Personal Information

- **Date / Place of Birth** : 14th March, 1980 ANKARA
- **Sex** : Male
- **Marital Status** : Married
- **Nationality** : Turkish

Languages :

1. **Turkish** - native language
2. **English** language (very good)
3. **German** language (intermediate)

Education

- **Institute of Experimentelle Kernphysik (IEKP), Karlsruhe Institute of Technology , *Ph.D in Physics*** September 2006- (expected) *June 2010*

- **Department of Physics , Izmir Institute of Technology (IYTE), *M.Sc. Physics*** September 2003-July 2006

Master Thesis Title : "Flavor Physics and CP Violation " PMC Phys.A2:2,2008

Graduation Grade : 3.67 / 4.0

- **Ege University, Graduate School of Natural and Applied Science, *M.Sc Physics Education*,** September 2002 - June 2004

- **Department of Physics, Ege University, B.Sc in Theoretical Physics,** September 1997 - June 2002

Senior Project Title: "Inner Sphere Reorganization Energy" Atomic and Molecular Physics

Graduation Grade : 77/100, Honored to be the **Third GPA** of *Ege Physics Department*.

- **Vali Vecdi Gonul High School, Izmir,** September 1994 - June 1997

Graduation Grade : 4.0/5.0

Professional Experience

Research and Teaching Assistantship

Institute of Nuclear Physics, KIT, Karlsruhe, Germany

September 2006 - Present

Izmir Institute of Technology (IYTE), Izmir, Turkey

September 2003 - 2006

European Organization For Nuclear Research (CERN), CMS, CH

June 2005 - Present

Undergraduate Laboratory Experience

- Teaching Assistant in the following undergraduate/graduate level tutorial and laboratories for last 5 years:

<u>Institution:</u>	<u>Period:</u>	<u>Academic Responsibility:</u>
IEKP, Karlsruhe Institute of Technology Karlsruhe, Germany	2007-2008	<u>Teaching Assistant:</u> Classical Electrodynamics and QED
IEKP, Karlsruhe Institute of Technology Karlsruhe, Germany	2006-present	<u>Teaching Assistant:</u> Advanced Nuclear Physics Lab.
Izmir Institute of Technology Department of Physics Izmir, TURKEY	2003-2006	<u>Teaching Assistant(B./M.Sc lectures):</u> Quantum Mechanics, Classical Electrodynamics , Quantum Field Theory, Analytical Mechanics (M.Sc courses)
Izmir Institute of Technology Department of Physics Izmir, TURKEY	2003-2006 Fall /Winter Semester	<u>Teaching Assistant(B.Sc lectures):</u> General Physics I-II, Electric Circuits, Mechanics, Modern Phys Waves Lab.

- I prepared **recitation** hours for **General Physics I and II, Quantum mechanics, Electromagnetic Theory/QED, Statistical Mechanics and Classical Mechanics** Courses in Physics Departments.
- I have worked in the preparation of the **lecture notes** for "**Field Theory, SUSY**" course when I was the Teaching Assistant of the course during my **M.Sc** study.

Research Experience

- **General Gravity and Astroparticle Physics (ICTP, Italy Summer School)**
- **Flavor and CP violation in SUSY (M.Sc Thesis)**
- **Standard Model Background simulations with various MC methods (MLM, CKKW , NLO)**
- **Event Generators (Pythia /Pythia++ Sherpa, Alpgen, MC@NLO, MCFM, Herwig/Herwig++ , SOFTSUSY, SUSYHIT, ISAJET) – Matrix element and Parton Shower matching mechanism**

I was working with Pythia/Mathematica investigating the some special SUSY channels during my M.Sc. thesis. I have experience in developed of the some special channels investigations in SUSY and prepared necessary data to analyze the experimental results. At the moment , i go on my MC study(advanced) in **CMS at Karlsruhe Institute of Technology**. I study the validation and implementation of **Sherpa-MC** in CMSSW framework. We compare SM background samples which are generated by **Sherpa, Alpgen, Madgraph** and **MC@NLO** in CMSSW framework. We study the differences of theoretical implemantations and systematical uncertainties between predictions , based on Tevatron tunes, for SUSY searches. The differences should be taken into account for Data Driven estimation methods at first year data.

- **Data analysis programs (CMSSW-PAT / RIVET)**

The major characteristics of jet and leptons are studied fast and full CMS simulations during my thesis. I have experienced in determination of the some special SUSY channels simulations in CMS (production all LM samples for CMS) . The simulated data from SM background is validated to analyze the experimental results in CMSSW. In addition I also have experienced MCnet tools for MC studies and tuning collision data at LHC.

- **NAF (German National Analysis Facility) , Grid Computing and Data analysis in CMS**
- **Sherpa-MC contact person in CMS collaboration 2007-present**
- **SUSY-MC production team in CMS collaboration 2008-2009**

Presentations

- **Generators Comparison for SUSY studies and SM estimations for various SUSY searches channels – update talks - SUSY Hadronic/Leptonic groups meeting , CERN-CMS, CH , 2007-Present.**
- **Generators Comparison for 10 TeV scenario and SHERPA-MC validation in CMS – update talks - Generator group meeting , CERN-CMS, CH , 2007-Present.**
- **Systematical uncertainties for SUSY searches in CMS and Sherpa background studies for SUSY searches in CMS at 10 TeV , GK-Workshop, 02.10.09, Freudenstadt , Germany**
- **Generator comparison in CMS at 10 TeV , MC Group, 14.09.09 DESY, Hamburg , Germany**
- **Systematical Uncertainties for SUSY searches , FSP CMS Meeting – 23.09.09, DESY ,Hamburg, Germany**

- SM Background comparison and systematic uncertainties for SUSY searches , FSP CMS Meeting -25.08.08 , Aachen, Germany
 - "Systematic Uncertainties for SUSY searches in CMS" **Seminar**, DPG-Deutsche Physik Gemeinschaft, Ludwig Maximilian Universitaet Muenchen(LMU), Germany , March , 2009.
 - "Systematic Uncertainties in MET calibration for Z->nunubar +nJets " **Seminar**, SUSY Hadronic meeting , CERN-CMS, CH , June , 2008
 - "Data Driven Calibration : Pythia , Sherpa and Alpgen" **Seminar**, FSP-CMS , Virtual-EVO , Germany, April , 2008
 - "Data Driven Calibration : MC comparison and systematical uncertainties" **Seminar**, DPG-Deutsche Physik Gemeinschaft, University of Freiburg, Germany , March , 2008.
 - "Generator Validation : Pythia , Sherpa and Alpgen" **Seminar-Proposal interface – validation Sherpa in CMSSW framework**, Generator Meeting in CMS , CERN , Geneva,CH, 17 March , 2008
 - "Generator Comparison : Pythia , Sherpa and Alpgen" **Seminar**, DPG-Deutsche Physik Gemeinschaft, University of Heidelberg,Germany March , 2007.
 - – **update talks – each week on monday** – KIT SUSY group meeting , KIT, Germany , 2006-Present.
 - "Yüksek Skaladaki Çeşni Yapılarına SUSY Eşik Düzeltme Etkileri" **Seminar**, Yuksek Enerji Fizigi Seminerleri, Orta Dogu Teknik Universitesi, Ankara, Turkey April , 2006 (Oral Presentation in Turkish).
 - "Hierarchy Problem and Supersymmetry" **Seminar**, Izmir Physics Days, Dokuz Eylul University, Turkey 20-21 May , 2005 (Oral Presentation in Turkish).
 - " Phenomenological issues in supersymmetry with nonholomorphic soft breaking ", **Seminar** ,Physics Department, Izmir Institute of Technology,Turkey, June 2005, Turkey (Oral Presentation in English).
 - " Mz to GUT Texture Investigations ", **Proposal Seminar I** , Izmir Institute of Technology, September 2005, Turkey (Oral Presentation in English).
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Publications

- **Analysis note in CMS Systematic Uncertainties for SUSY Searches at $\sqrt{s}=10$ TeV (SUSY Group) – soon**
- **Analysis note in CMS Statistical Model for SUSY (SUSY Group) - soon**
- **Analysis note in CMS Generator Comparison at 10 TeV (MC Generator Group) AN-02/2010**
- **Analysis note in CMS Search for SUSY with one, two and three muons at 10 TeV –AN 01/2010**
- **Analysis note in CMS Search for Supersymmetry with Trimuons AN- 077/2009**

CMS Analyses notes are studied under the supervision of Prof. Dr. Wim De BOER in Karlsruhe SUSY group.

- **The CMS Collaboration publications between 2006-present**
- **Effects of Supersymmetric Threshold Corrections on High-Scale Flavor Textures.**
M.Altan Cakir, Levent Solmaz . Aug 2006. 25pp. Published in **PMC Phys.A2:2,2008.**
- **Phenomenological issues in supersymmetry with nonholomorphic soft breaking,** M. A. Cakir and S. Mutlu,L. Solmaz Physical Review D 71, 115005 (2005)

Academic Activities

- **Workshop "Event Generator and Data Analysis"** Physics Department, **Mugla University**, January 2004, **Mugla-Turkey**
- **Summer School "Cosmology And Astroparticle Physics"** **Abdus Salam International Centre for Theoretical Physics** ,Miramere-Trieste, July 2004
- **Workshop "SUSY Workshop"** Physics Department, **Cukurova University**, Turkey February 2005
- **Summer School "The Physics Of LHC: Theoretical Tools and Experimental Challenges"** Physics Department, **University of Lecce**, Lecce, Italy, June 2005
- **Research Work** "Compact Muon Selenoid Collaboration" **European Organization For Nuclear Research (CERN)**, CMS, Geneva, CH ,15 June-15 July 2005
- **Research School** "International Committee for Future Accelerators (ICFA)- Instrumentation School on Particle Physics and Detector Applications " **Feza Gursey Institute-Istanbul Technical University (ITU)**, Istanbul –Turkey ,September 2005

- **Workshop "Particle Physics in LHC and Beyond the Standard Model, University Paris VII** , December 2006, **Paris-France**
- **CMS - Weeks** , **CERN** , September 2006- present, **Geneva-CH**
- **Workshop "GridKA School, FZK** , September-2008, **Karlsruhe-Germany**

- **Conference "SUSY 2007, KIT** , April-2007, **Karlsruhe-Germany**

- **Workshop "TeV Scale Particle Physics, DESY** , April-2007, **Hamburg-Germany**

- **D-CMS workshops** , September-2006- present, **Germany**

- **LHC-D workshops** September-2006- present, **Germany**

- **FSP-CMS workshop DESY** , September-2006- present, **Germany**

- **Workshop "MC School, University of Hamburg / DESY** , April 2008-2009, **Hamburg-Germany**

- **CMS – Generator and SUSY group meetings** , **CERN** , September 2006- present, **Geneva-CH**

- **CMS – “MC Tunings and Data Analysis” , CERN , December 2008, Geneva-CH**
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Computer Skills

- **Simulation Programmes,**

Monte Carlo programs : Pythia , Sherpa , Alpgen , MC@NLO , MCFM , MadGraph, SOFTSUSY, SUSYHIT, ISAJET - standalone and with CMSSW interfaces

- **Data Analysis**

Root , Rivet , PAT , CMSSW

- **Package Programmes,**

RedHat linux , Scientific Linux CERN (all versions), Debian , Ubuntu, Microsoft Windows 7/Vista/XP/2000 , Microsoft Office Vista/XP/2000/97,

- **Programming Software,**

Model 82-DOS Simultaneous CV Software

Fortran 77, Mathematica (all versions), C++ , Grid , crab, Grid-Control

- **Fileservers Administration**

Fileservers administration in IEKP - 2007-2009. RAID Controller 5/6 and Areca tool administrations

Awards

I have been listed in the **President’s Honor List of Izmir Institute of Technology** during my graduate study.

I have been listed in the **President’s Honor List of Ege University** during my undergraduate studies.

I have graduated with the thirdGPA of Ege Univ. Physics Department

Professional Memberships

Compact Muon Selenoid, Collaboration European Organization For Nuclear Research (CERN), **CMS**, Geneva, CH, as a name of **IEKP , Karlsruhe Institute of Technology(KIT)** , Karlsruhe-Germany

Compact Muon Selenoid, Collaboration European Organization For Nuclear Research (CERN), **CMS**, Geneva, CH, as a name of **Department of Physics, Izmir Institute of Technology (IYTE)** (via **Bogazici Universty**) , Izmir-Turkey.

CERN Courier, European Organization For Nuclear Research, Geneva, CH

German Physics Society, DPG.

Non-Academic Activities

Music Education

Guitar , Flute

Foreign language Club

German and English

History of Fine Arts Course

Project Presentation: Letoon, Climbing

History of Europe and Middle East , Anatolia

Computing&Games

Sports

Cycling , Climbing , Trekking , Basketball

References

Prof. Dr. Wim de Boer (Advisor)

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