

## Contact

Instituto de Física Teórica UAM/CSIC  
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## Personal Details

Nationality	German
Date and Place of Birth	30 January 1984 in Lüneburg, Germany
Languages	German (native), English (fluent), Spanish (basic), French (basic)

## Education

- 2011 *Dr. rer. nat.* (Ph.D.) in physics, overall grade: *excellent, with honours*<sup>1</sup>  
Universität Hamburg, Department Physik and DESY Theory Group, Hamburg, Germany  
Doctoral thesis: “*Unstable Gravitino Dark Matter – Prospects for Indirect and Direct Detection.*”  
Thesis advisor: Prof. Dr. Laura Covi
- 2008 *Diplom* (degree) in physics (minor in astronomy), overall grade: *excellent, with honours*<sup>1</sup>  
Universität Hamburg, Department Physik and DESY Theory Group, Hamburg, Germany  
Diploma thesis: “*Neutrino Signals from Gravitino Dark Matter with Broken R-Parity.*”  
Thesis advisor: Dr. Laura Covi
- 2005 *Vordiplom* (pre-degree) in physics (minor in astronomy), overall grade: *excellent*<sup>1</sup>  
Universität Hamburg, Department Physik, Hamburg, Germany
- 2003 *Allgemeine Hochschulreife* (Abitur<sup>2</sup>), overall grade: 1.1<sup>3</sup>  
Gymnasium Herderschule, Lüneburg, Germany

## Awards

- 2012 Award for one of the best doctoral theses at the department of physics of the Universität Hamburg in 2011
- 2008 *Otto-Stern-Preis* for the best Diplom at the department of physics of the Universität Hamburg in the summer semester 2008
- 2003 Award for the best Abitur at the Gymnasium Herderschule Lüneburg in 2003
- 2003 *DPG-Buchpreis 2003* for the best Abitur exam in physics at the Gymnasium Herderschule Lüneburg in 2003

## Positions

*Postdoctoral Researcher*: Instituto de Física Teórica UAM/CSIC, Madrid, Spain (2011–present)  
*Research associate*: DESY Theory Group, Hamburg, Germany (2008–2011)

## Memberships in Research Projects and Networks

- since 2011 Marie Curie Initial Training Network *Unification in the LHC era*
- 2008–2011 Collaborative Research Center SFB 676 *Particles, Strings, and the Early Universe*
- 2007–2009 Helmholtz Young Investigators Group  
*Particle Physics and Cosmology: Beyond the two Standard Models*

**Teaching Experience**

*Teaching Assistant:* DESY Theory Group (2009–2010)

Taught an exercise class on a lecture on theories of physics beyond the standard model.

*Teaching Assistant:* II. Institute for Theoretical Physics, Universität Hamburg (2007)

Graded exercises and exams for a lecture on statistical mechanics and thermodynamics.

*Teaching Assistant:* Institute for Experimental Physics, Universität Hamburg (2006–2007)

Graded exercises and exams for a lecture on nuclear and particle physics.

**Related Work Experience**

*Assistant Editor:* DESY High Energy Physics Research Division (2010)

Editing conference proceedings for the Physics at LHC 2010 conference at DESY, Hamburg.

*Contributor to SPIRES:* DESY Library (2010–2011)

Assignment of keywords to astro-ph and hep-ph articles for the SPIRES HEP database.

*Tour Guide:* DESY Press and Public Relations Department (2009–2011)

Giving visitors of DESY an introductory lecture about the research center followed by a tour to the experimental facilities.

**Refereed Publications**

1. L. Covi, M. Grefe, A. Ibarra, and D. Tran, “*Unstable Gravitino Dark Matter and Neutrino Flux*,” JCAP **0901** (2009) 029 [arXiv:0809.5030 [hep-ph]]
2. L. Covi, M. Grefe, A. Ibarra, and D. Tran, “*Neutrino Signals from Dark Matter Decay*,” JCAP **1004** (2010) 017 [arXiv:0912.3521 [hep-ph]]

**Conference Proceedings**

1. M. Grefe, “*Indirect searches for gravitino dark matter*,” TAUP 2011, München, Germany, 5–9 September 2011, J. Phys. Conf. Ser. **375** (2012) 012035 [arXiv:1111.7117 [hep-ph]]

**Invited Talks**

- 11/2012 “*Gravitino Dark Matter with Broken R-Parity*,”  
IFT Seminar, Instituto de Física Teórica UAM/CSIC, Madrid, Spain
- 06/2012 “*Gravitino Dark Matter with Bilinear R-Parity Violation*,”  
IFIC’s Seminar, Institut de Física Corpuscular, Universitat de València/CSIC, Spain
- 02/2012 “*Instabile Gravitinos als Dunkle Materie*,”  
Award ceremony for the best doctoral theses, Universität Hamburg, Germany
- 12/2008 “*Dunkle Materie und Teilchenphysik*,”  
Otto–Stern–Preis award ceremony, Universität Hamburg, Germany

**Conferences and Presentations**

- 12/2012 XVIII IFT Xmas Workshop, Instituto de Física Teórica UAM/CSIC, Madrid, Spain
- 12/2012 TeV Particle Astrophysics 2012 (TeVPA 2012),  
Tata Institute of Fundamental Research, Mumbai, India  
Parallel session talk: “*Cosmic-Ray Constraints on Unstable Gravitino Dark Matter*.”

- 11/2012 7th MultiDark Consolider Workshop, IFAE, Barcelona, Spain  
Talk: *“Gravitino Dark Matter with Broken R-Parity.”*
- 05/2012 PLANCK 2012: From the Planck Scale to the Electroweak Scale,  
University of Warsaw, Poland  
Parallel session talk: *“Indirect Searches for Gravitino Dark Matter.”*
- 04/2012 Implications of the Early LHC for Cosmology, DESY Hamburg, Germany
- 12/2011 IFT Inaugural Conference & XVII XMAS Workshop,  
Instituto de Física Teórica UAM/CSIC, Madrid, Spain
- 11/2011 5th MultiDark Consolider Workshop, CIECEM, Huelva, Spain
- 09/2011 TAUP 2011: 12th International Conference on Topics in Astroparticle and  
Underground Physics, München, Germany  
Parallel session talk: *“Indirect Searches for Gravitino Dark Matter.”*
- 06/2011 IDMS 2011: Workshop on Indirect Dark Matter Searches, DESY Hamburg, Germany  
Talk: *“Indirect Searches for Gravitino Dark Matter.”*
- 09/2010 Horiba International Conference: COSMO/CosPA 2010,  
The University of Tokyo, Japan  
Parallel session talk: *“Neutrino Signals from Dark Matter Decay.”*
- 09/2010 DESY Theory Workshop 2010: Quantum Field Theory: Developments and  
Perspectives, DESY Hamburg, Germany
- 05/2010 The Dark Matter Connection: Theory and Experiment,  
The Galileo Galilei Institute for Theoretical Physics, Florence, Italy  
Talk: *“Neutrino Signals from Dark Matter Decay.”*
- 09/2009 DESY Theory Workshop 2009: Collider Phenomenology, DESY Hamburg, Germany  
Parallel session talk: *“Neutrino Signals from Unstable Dark Matter.”*
- 07/2009 PASCOS 2009: 15th International Symposium on Particles, Strings and Cosmology,  
DESY Hamburg, Germany
- 03/2009 DPG Frühjahrstagung 2009, LMU München, Germany  
Parallel session talk: *“Neutrino Signals from Unstable Gravitino Dark Matter.”*
- 10/2008 DESY Theory Workshop 2008: Dark Matter at the Crossroads,  
DESY Hamburg, Germany  
Parallel session talk: *“Neutrino Signals from Gravitino Dark Matter with Broken  
R-Parity.”*
- 05/2008 3. Kosmologietag, University of Bielefeld, Germany  
Talk: *“Neutrino Signals from Gravitino Dark Matter with Broken R-Parity.”*
- 02/2008 ENTApP 2008 Dark Matter Visitor’s Program, DESY Hamburg, Germany  
Talk: *“Neutrino Signals from Gravitino Dark Matter Decays.”*

### Summer Schools and Professional Trainings

- 09/2012 UniLHC 2012: 2nd ITN School on Unification in the era of LHC,  
Institut de Física Corpuscular, Universitat de València/CSIC, Spain  
Talk: *“Cosmic-Ray Constraints on Unstable Gravitino Dark Matter.”*
- 03/2012 Science Dialogues: Training Course in Science Communication,  
SISSA Medialab, Trieste, Italy

- 07/2010 Cargèse 2010: Physics at TeV Colliders – From Tevatron to LHC,  
Institut d’Etudes Scientifiques de Cargèse, France
- 08/2009 NIJMEGEN09: 3rd International Summer School on Astroparticle Physics,  
Nijmegen, The Netherlands  
Talk: “*Neutrino Signals from Unstable Dark Matter.*”

## Internal Seminars

- 01/2011 Internal seminar talk on “*Supergravity in the Jordan Frame.*”
- 06/2010 Internal seminar talk on “*Gauge Mediation.*”
- 04/2009 Internal seminar talk on “*Decaying Gravitino Dark Matter.*”
- 11/2008 Internal seminar talk on “*Supersymmetric GUTs.*”

## References

*Prof. Dr. Laura Covi*, Georg-August-Universität Göttingen, Institut für Theoretische Physik  
Friedrich-Hund-Platz 1, 37077 Göttingen, Germany  
+49-(0)551-39-12862, laura.covi@theorie.physik.uni-goettingen.de

*Prof. Dr. Carlos Muñoz*, Universidad Autónoma de Madrid  
Instituto de Física Teórica UAM/CSIC  
C/ Nicolás Cabrera 13-15, Cantoblanco, 28049 Madrid, Spain  
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*Prof. Dr. Alejandro Ibarra*, Technische Universität München, Physik-Department  
James-Franck-Str. 1, 85748 Garching, Germany  
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<sup>1</sup>*Doktor, Diplom* and *Vordiplom* examination grades are awarded on a scale of 1–5, where 1 (*excellent*) corresponds to an excellent performance and 5 (*deficient*) is the lowest grade. In the case of the *Diplom*, provided the final grade is 1.0, an endorsement “*with honours*” will be added. In the case of the *Doktor*, provided the thesis defense is rated “*excellent*” and the doctoral thesis is proposed for an endorsement “*with honours*” by both advisors as well as by an external reviewer, the endorsement “*with honours*” will be added.

<sup>2</sup>German school leaving examination and general qualification for university entrance.

<sup>3</sup>*Abitur* examination grades are awarded on a scale of 1–6, where 1 corresponds to an excellent performance and 6 is the lowest grade.