

Curriculum Vitae

Personal Information

Name: Dr. Małgorzata Maria Worek

Nationality: Polish

Gender: Female

Marital Status: Married

Contact Information

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Employment History:

December 2008 - Present:

Tenure-Track Researcher within the Helmholtz Alliance, "Physics at the Terascale"
Bergische Universität Wuppertal, Wuppertal, Germany

October 2006 - September 2009:

Assistant Professor (*Pl. Adiunkt*)
Institute of Theoretical Physics
University of Silesia, Katowice, Poland

September 2006 - November 2008:

Postdoctoral Researcher
Institute for Theoretical Physics
Karlsruhe University, Germany

March 2006 - August 2006:

Assistant Professor (*Pl. Adiunkt*)
Institute of Nuclear Physics
Kraków, Poland

December 2005 - February 2006:

Research-and-teaching Assistant (*Pl. Asystent*)
Institute of Nuclear Physics
Kraków, Poland

December 2003 - November 2005:

Postdoctoral Researcher (Marie Curie Fellowship)
Institute of Nuclear Physics, NCSR "Demokritos"
Athens, Greece

October 2003 - November 2003:

Research-and-teaching Assistant (*Pl. Asystent*)
Institute of Nuclear Physics
Kraków, Poland

Education and Training:**University:**

M.Sc. studies in Physics, October 1994 - June 1999
Department of Astrophysics and Cosmology
University of Silesia, Katowice, Poland
Master of Science degree in 1999
Thesis: "Scalar Fields in Inflationary Models"
Advisor: Prof. Dr. habil. Ryszard Mańka

Graduate School:

Ph.D. studies in Theoretical Physics, October 1999 - September 2003
Department of Field Theory and Particles Physics
University of Silesia, Katowice, Poland
Ph.D. in Theoretical Physics 2003 (degree with honors)
Thesis: "Spin Correlations of the Heavy Flavours as a Signal for Higgs Bosons"
Advisor: Prof. Dr. habil. Marek Jeżabek

Training:

Stipend at the Marie Curie Training Site, October 2002 - January 2003
University of Karlsruhe, Karlsruhe, Germany

Teaching Experience:**Wuppertal University:**

1. Winter semester 2011/2012: Lecture course, GETA - Grundlagen der Elementarteilchen und Astroteilchenphysik, Foundations of Elementary and Astroparticle Physics (theoretical particle physics part)
2. Summer semester 2010/2011: Lecture course, The Standard Model - Combined course on Quantum Field Theory in Particle Physics and The Standard Model in Experiment (QFT part)
3. Winter semester 2009/2010: Teaching assistant for the Quantum Field Theory course

Karlsruhe University:

Winter semester 2007/2008: Teaching assistant for the Undergraduate Seminar on Collider Physics

University of Silesia:

1999 - 2003: Teaching assistant for the following courses:
Algebra, Classical Mechanics, Classical Electrodynamics, Quantum Mechanics, Mathematical Methods in Physics, Elementary Computing - Fortran 95

Grants:

2004 - 2005:

Participant of Polish State Committee for Scientific Research Grant (KBN Grant) Number 1 P03B 009 27, "Two loop QED corrections to the Bhabha process"

2002 - 2003:

Participant of Polish State Committee for Scientific Research Grant (KBN Grant) Number 2 P03B 001 22, "Precise expectation for the models of the quantum field theory in the high energy physics experiments"

2001 - 2002:

Principal Investigator of Polish State Committee for Scientific Research Grant (KBN Grant) Number 5 P03B 101 21, "Higgsola - A library of Monte Carlo programs to simulate decays of Higgs boson"

2001 - 2003:

Participant of Polish State Committee for Scientific Research Grant (KBN Grant) Number 5 P03B 093 20, "Theoretical study of the fundamental fermions and their interactions"

Professional Activities:

(Co)Organized Conferences:

- Alliance Workshop on Top Quark Physics
7-8 April 2011, Bergische Universität Wuppertal, Wuppertal
<http://indico.desy.de/conferenceDisplay.py?confId=3969>
- 33th International Conference of Theoretical Physics, "Matter to the deepest - Recent developments in physics of fundamental interactions" Ustron'09
11 - 16 September 2009, Ustron, Poland
<http://prac.us.edu.pl/~us2009/>
- Mini-workshop on fixed order multi-leg automatic NLO calculations
2 - 3 June 2009, Bergische Universität Wuppertal, Wuppertal
<https://indico.desy.de/conferenceDisplay.py?confId=1901>
- 27th International Conference of Theoretical Physics, "Matter to the deepest - Recent developments in physics of fundamental interactions" Ustron'03
15 - 21 September 2003, Ustron, Poland
- 25th International School Of Theoretical Physics, "Particles And Astrophysics: Standard Models And Beyond"
10 - 16 September 2001, Ustron, Poland

(Co)Elaborated Proceedings:

Proceedings prepared for 25th International School of Theoretical Physics
Particles and Astrophysics: Standard Models and Beyond
Ustron, Poland, 10-16 Sep 2001
Published in Acta Phys. Pol. B32 (2001) 3555-3919
(Co)Editor

Talks & Seminars:

1. **Phenomenological studies of top-pair production at NLO**
XXXV International Conference of Theoretical Physics, Ustron11 Ustron, Poland, 14 September 2011

2. **HELAC-NLO: Developments & Applications**
LoopFest X, Radiative corrections for the LHC and future colliders Evanston, Illinois, USA, 12 May 2011
3. **Recent Developments in NLO QCD calculations**
XL International Symposium on Multiparticle Dynamics (ISMD 2010), Antwerp, Belgium, 21 September 2010
4. **Next-to-Leading Order $t\bar{t}$ plus Jets Physics with HELAC-NLO**
TOP 2010, 3rd International Workshop on Top Quark Physics Bruges, Belgium, 31 May 2010
5. **Next-to-Leading Order $t\bar{t}$ plus Jets Physics with HELAC-NLO**
Rencontres de Moriond QCD and High Energy Interactions, La Thuile, Italy, 17 March 2010
6. **LO & NLO Monte Carlos for the LHC**
TU Dortmund, Germany, 26 January 2010
7. **LO and NLO calculations with HELAC-PHEGAS**
3rd Annual Workshop of the Helmholtz Alliance "Physics at the Terascale", DESY Hamburg, Hamburg, Germany, 12 November 2009
8. **NLO QCD corrections to $pp \rightarrow t\bar{t}b\bar{b}$**
3rd Annual Workshop of the Helmholtz Alliance "Physics at the Terascale", DESY Hamburg, Hamburg, Germany, 11 November 2009
9. **NLO calculations finally fully automatic (?)**
Meeting of the GDR Terascale in Heidelberg, Heidelberg, Germany, 16 October 2009
10. **Assault on the NLO Wishlist: $pp \rightarrow t\bar{t}b\bar{b}$**
XXXIII International Conference of Theoretical Physics, Matter To The Deepest: Recent Developments In Physics of Fundamental Interactions, Ustron, Poland, 12 September 2009
11. **The Unavoidable: Monte Carlos for the LHC, HELAC-PHEGAS**
CAPP School, Zeuthen, Germany, 31 March 2009 & MC School 2009, DESY Hamburg, Germany, 22 April 2009
12. **Monte Carlo Generators for the LHC**
DPG Meeting, Munich, Germany, 12 March 2009
13. **Monte Carlo Generators for the LHC**
MPI, Munich, Germany, 16 June 2008
14. **Multi-Particle Processes at the LHC with HELAC**
TU Dresden, Germany, 29 May 2008
15. **Multi-Particle Processes in the Standard Model with HELAC**
KEK, Tsukuba, Japan, 28 April 2008
16. **HELAC-PHEGAS - The Swiss Army Knife of Leading Order Parton Level MC Generators**
DESY-ATLAS meeting, DESY-Hamburg, Germany, 6 December 2007
CMS Group, IEKP, Karlsruhe University, Karlsruhe, Germany, 21 January 2008
ATLAS MC Meeting CERN, Geneva, Switzerland, 17 March 2008
17. **VBF Processes at the LHC with VBFNLO**
Mini-Workshop on Massive Particle Production at the LHC, Berlin, Germany, 31 October 2007
18. **Monte Carlo Generators for the LHC**
XXXI International Conference of Theoretical Physics, Matter To The Deepest: Recent Developments In Physics of Fundamental Interactions, Ustron, Poland, 6 September 2007

19. **Monte Carlo Generators for the LHC**
Freiburg University, Freiburg, Germany, 24 May 2007
20. **Calculation of Multi-Particle Processes in the Standard Model**
XXIX International Conference of Theoretical Physics, Matter to the Deepest: Recent Developments in Physics of Fundamental Interactions, Ustron, Poland, 8 - 14 September 2005
21. **CP nature of the Higgs bosons from decays to tau leptons**
Workshop on Higgs Physics at Future Colliders, Warsaw University, Warszawa, Poland, 21 November 2003
22. **CP nature of the Higgs boson in tau production at the LC**
XXVII International Conference of Theoretical Physics, Matter To The Deepest: Recent Developments In Physics of Fundamental Interactions, Ustron, Poland, 5-21 September 2003
23. **Determination of Higgs boson parity in tau tau decays**
Cracow Epiphany Conference on Heavy Flavors, Krakow, Poland, 3-6 January 2003
24. **Tau Polarisation and Its Correlations as a Signal for Higgs Boson**
XXV International School of Theoretical Physics: Particles and Astrophysics Standard Models and Beyond. Ustron, Poland, 13-16 September 2001

Research Interests:

- Phenomenology of the Standard Model at present and future colliders
- Monte Carlo simulations of physical processes
- Next-to-leading order QCD corrections to multi-particle production
- Efficient numerical evaluation of multi-particle final states
- Matching of multi-leg amplitudes with parton showers

Monte Carlo Programs:

- HELAC-PHEGAS:
<http://helac-phegas.web.cern.ch/helac-phegas/helac-phegas.html>
- HELAC-NLO
 - HELAC-DIPOLES
<http://helac-phegas.web.cern.ch/helac-phegas/helac-dipoles.html>
 - HELAC-1LOOP
<http://helac-phegas.web.cern.ch/helac-phegas/helac-1loop.html>
- VBFNLO
<http://www-itp.particle.uni-karlsruhe.de/~vbfnlweb/>

Programming:

- Fortran, Form, Mathematica

Languages:

- Polish (mother tongue)
- English (fluent)
- German (basic)