

## PUBLICATIONS 2005

E. Accomando, A. Denner and A. Kaiser,

*Logarithmic electroweak corrections to gauge-boson pair production at the LHC*

Nucl. Phys. **B 706**, 325 (2005).

K. Barro-Bergflödt, R. Rosenfelder and M. Stingl,

*Worldline variational approximation: a new approach to the relativistic binding problem*

Mod. Phys. Lett. **A 20**, 2533 (2005).

S. D. Bass,

*The spin structure of the proton*

Rev. Mod. Phys. **77**, 1257 (2005).

T. Binoth, M. Ciccolini, N. Kauer and M. Krämer,

*Gluon-induced  $WW$  background to Higgs boson searches at the LHC*

JHEP **0503**, 065 (2005).

S. Y. Choi, J. Kalinowski, J. S. Lee, M. M. Muhlleitner, M. Spira and P. M. Zerwas,

*Determining  $\tan\beta$  in  $\tau\tau$  fusion to susy Higgs bosons at a photon collider*

Phys. Lett. **B 606**, 164 (2005).

Ph. de Forcrand and D. Noth,

*Precision lattice calculation of  $SU(2)$  't Hooft loops*

Phys. Rev. **D 72**, 114501 (2005).

A. Denner and S. Pozzorini,

*An algorithm for the high-energy expansion of multi-loop diagrams to next-to-leading logarithmic accuracy*

Nucl. Phys. **B 717**, 48 (2005).

A. Denner, S. Dittmaier, M. Roth and L. H. Wieders,

*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to charged-current  $e^+e^- \rightarrow 4$  fermion processes*

Phys. Lett. **B 612**, 223 (2005).

A. Denner, S. Dittmaier, M. Roth and L. H. Wieders,

*Electroweak  $\mathcal{O}(\alpha)$  corrections to charged-current  $e^+e^- \rightarrow 4$  fermion processes: technical details and further results*

Nucl. Phys. **B 724**, 247 (2005).

K.-P. O. Diener, S. Dittmaier and W. Hollik,

*Electroweak higher-order effects and theoretical uncertainties in deep-inelastic neutrino scattering*

Phys. Rev. **D 72**, 093002 (2005).

G. Ecker and R. Unterdorfer,  
*Generating functional for strong and nonleptonic weak interactions*  
JHEP **0510**, 017 (2005).

M. Gomez-Bock, M. Mondragon, M. Mühlleitner, R. Noriega-Papaqui, I. Pedraza, M. Spira and P.M. Zerwas,  
*Rompimiento de la Simetria electrodebil y la Fisica del Higgs: Conceptos basicos*  
J. Phys. Conf. Ser. **18**, 74 (2005).

P. Häfliger and M. Spira,  
*Associated Higgs boson production with heavy quarks in  $e^+e^-$  collisions: SUSY-QCD corrections*  
Nucl. Phys. **B 719**, 35 (2005)

B. Jantzen, J.H. Kühn, A. A. Penin and V. A. Smirnov,  
*Two-loop electroweak logarithms in four-fermion processes at high energy*  
Nucl. Phys. **B 731**, 188 (2005).

R. Kinnunen, S. Lehti, F. Moortgat, A. Nikitenko and M. Spira,  
*Measurement of the  $H/A \rightarrow \tau\tau$  cross section and possible constraints on  $\tan\beta$*   
Eur. Phys. J. **C 40 N5**, 23 (2005) .

M. Krämer, T. Plehn, M. Spira and P.M. Zerwas,  
*Pair production of scalar leptoquarks at the LHC,*  
Phys. Rev. **D 71**, 057503 (2005) .

L.S. Stark, P. Häfliger, A. Biland and F. Pauss,  
*New allowed  $mSUGRA$  parameter space from variations of the trilinear scalar coupling  $A_0$*   
JHEP **0508**, 059 (2005).

## CONTRIBUTIONS TO CONFERENCES AND WORKSHOPS

K. Ackermann, A. Denner *et al.*  
*Extended joint ECFA/DESY study on physics and detector for a linear  $e^+e^-$  collider*  
Proceedings of the *4th ECFA / DESY Workshop on Physics and Detectors for a 90-GeV to 800-GeV Linear  $e^+e^-$  Collider*, Amsterdam (The Netherlands), 1 - 4 April 2003.

M. Ciccolini,  
*Gluon induced W-boson pair production as SM Higgs boson discovery background at the LHC*  
*Weak Interactions and Neutrinos 2005 (WIN '05)*, Delphi (Greece), 6 - 11 June 2005.

Ph. de Forcrand, B. Lucini and D. Noth,  
*'t Hooft loops and perturbation theory*  
*23rd International Symposium on Lattice Field Theory: Lattice 2005*, Trinity College, Dublin (Ireland), 25 -30 July 2005.

A. Denner, S. Dittmaier, M. Roth and L.H. Wieders,  
*Electroweak corrections to four-fermion production in  $e^+e^-$  2005 International Linear Collider Workshop (LCWS 2005)*,  
Stanford (USA), 18 - 22 March 2005.

P. Häfliger and M. Spira,  
*SUSY-QCD corrections to  $e^+e^- \rightarrow bb/tt$  and neutral Higgs boson*  
*SUSY 05*, Durham (England), 18 - 24 July 2005.

P. Häfliger and M. Spira,  
*Higgs boson production with heavy quarks in  $e^+e^-$  collisions: SUSY-QCD corrections*  
*HEP-EPS 05*, Lisboa (Portugal), 22 - 27 July 2005 .

T. Hahn, S. Heinemeyer, W. Hollik, H. Rzehak and G. Weiglein,  
*High precision calculations in the MSSM Higgs sector with FeynHiggs2.3*  
*Workshop 'Physics at TeV Colliders'*, Les Houches (France), 2 - 20 May 2005

S. Heinemeyer, M. Spira *et al.*,  
*Toward high Precision Higgs-boson measurements at the International Linear  $e^+e^-$  Collider*  
*2005 International Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator*  
*Workshop*, Snowmass (USA), 2005 .

S. Heinemeyer, W. Hollik, H. Rzehak and G. Weiglein,  
*QCD corrections to the Higgs sector of the complex MSSM*  
*4th CPNSH meeting on CP studies and non-standard Higgs physics*, CERN, Geneva (Switzerland), 14 - 16 December 2005.

B. Jantzen,  
*Evaluation of electroweak two-loop corrections in the high energy limit*  
*ECFA International Linear Collider Workshop 2005*, Vienna (Austria), 14 - 17 November 2005.

R. Rosenfelder,  
*Worldline variational approximation: A new approach to the relativistic binding problem*  
*8th International Conference on Path Integrals: from Quantum Information to Cosmology*,  
Prague (Czech Republic), 6 - 10 June 2005.

R. Rosenfelder,  
*Vacuum polarization effects in the worldline variational approach to Quantum Field Theory*  
*PANIC05: Particles and Nuclei International Conference*, Santa Fe, (USA), 24 - 28 October  
2005.

L.S. Stark, P. Häfliger, A. Biland and F. Pauss,  
*Impact of  $A_0$  on the  $mSUGRA$  parameter space*  
*40th Rencontres de Moriond on QCD and High Energy Hadronic Interactions*, La Thuile, Aosta  
Valley (Italy), 12 - 19 March 2005.

L.S. Stark, P. Häfliger, A. Biland and F. Pauss,  
*Impact of  $A_0$  on the  $mSUGRA$  parameter space & consequences for cold dark matter searches*  
*SUSY 05*, Durham (England), 18 - 24 July 2005,  
*HEP-EPS 05*, Lisboa (Portugal), 22 - 27 July 2005 .

## INVITED TALKS

A. Denner,  
*Higgs-boson production at an electron-positron linear collider*  
Theoriekolloquium, Universität Karlsruhe (Germany), 17 February 2005.

A. Denner,  
*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to  $e^+e^- \rightarrow 4$  fermions*  
Seminar über spezielle Fragen der theoretischen Elementarteilchenphysik, RWTH Aachen (Germany), 14 July 2005.

A. Denner,  
*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to  $e^+e^- \rightarrow 4$  fermions*  
7th International Symposium on Radiative Corrections (RADCOR05), Shonan Village, 2 -7 October 2005.

A. Denner,  
*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to  $e^+e^- \rightarrow 4$  fermions*  
Particle Physics Seminar, Universität Zürich, 24 October 2005.

A. Denner,  
*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to  $e^+e^- \rightarrow 4$  fermions*  
ECFA Study of Physics and Detectors for a Linear Collider, Vienna (Austria), 14 - 17 November 2005.

A. Denner,  
*Complete electroweak  $\mathcal{O}(\alpha)$  corrections to  $e^+e^- \rightarrow 4$  fermions*  
Meeting on Particle Physics Phenomenology, CERN, Geneva (Switzerland), 2 December 2005.

P. Häfliger,  
*SUSY-QCD corrections to  $e^+e^- \rightarrow bb/tt$  and neutral Higgs boson*  
Particle Physics Seminar, ETH Zürich, 21 June 2005.

M. Spira,  
 *$\Phi \rightarrow gg$ : QCD Corrections to Squark Loops*  
ECFA/DESY Linear Collider Workshop, Vienna (Austria), 13 - 17 November 2005.

M. Spira,  
*Electroweak Symmetry Breaking and Higgs Physics: I, II*  
Seminars, LAPTH, Annecy (France), 1 - 30 September 2005 .

M. Spira,  
*Associated Production of Squarks with Gauginos at Hadron Colliders*  
Workshop SUSY '05, Durham (UK), 18 - 23 July 2005 .

M. Spira,  
*Higgs Physics at Future Colliders*  
*Summary (Convenor) : Electroweak Symmetry Breaking (Theory Part)*  
Workshop 'Weak Interactions and Neutrinos 2005', Delphi (Greece), 6 - 12 June 2005 .

M. Spira,  
*Higgs Boson Production: Application of Bottom PDFs*  
*Higgs Boson Production:  $t\bar{t} + A$  at NLO*  
*PROSPINO and Leptoquarks: From TeV. to TeV*  
Workshop 'Physics at TeV Colliders', Les Houches (France), 2 - 20 May 2005 .

M. Spira,  
*PROSPINO and Leptoquarks: From TeV. to TeV*  
Workshop Tev4LHC, CERN, Geneva (Switzerland), 28 - 30 April 2005 .

M. Spira,  
*Higgs Boson Production at the LHC: Results and open Problems*  
Seminar, Freiburg (Germany), 18 February 2005 .

M. Spira,  
*Quantum Physics: Attempt of a public Introduction*  
Popular lecture, Workshop SIWIC '05, Zürich, 3 July 2005 .

R. Unterdorfer,  
*The decays  $K_{S,L}$  into four leptons*  
Euridice Midterm Collaboration Meeting, Frascati (Italy), 8 - 12 February 2005 .

## LECTURES AND COURSES

A. Denner: "Das Standardmodell der elektroschwachen Wechselwirkung und dessen Erweiterungen", ETH Zürich, WS 05/06.

A. Denner, M. Spira (with Z. Kunszt et al.): Proseminar on "Supersymmetry and Extra Dimensions", ETH Zürich, WS 05/06.

R. Rosenfelder: "Pfadintegrale in der Quantenphysik", ETH Zürich, WS 05/06.

M. Spira and K.-P. O. Diener: "Seminar über Physik der Elementarteilchen", PSI, SS 05,  
M. Spira and M. Ciccolini: "Seminar über Physik der Elementarteilchen", PSI, WS 05/06.

M. Spira: "Einführung in die Quantenchromodynamik", ETH Zürich, SS 05.

M. Spira (with F. Pauss): "Physik jenseits des Standardmodells", ETH Zürich, WS 05/06.

## AWARDS

L. Wieders: *Complete electroweak  $O(\alpha)$  corrections to charged-current  $e^+e^- \rightarrow 4$  fermion processes*,

Doctoral thesis, U. Zürich,

Advisors: A. Denner (PSI), D. Wyler (U. Zürich), Th. Gehrman (U. Zürich)