LOOPS AND LEGS IN QUANTUM FIELD THEORY

2000 ZEUTHEN WORKSHOP ON ELEMENTARY PARTICLE THEORY

Schedule

Sunday, April 09:

4.00 p.m. **Registration**

8.30 p.m. *Welcome*

Monday, April 10: Morning Session

7.30 a.m.	–	9.00 a.m.		**Breakfast**

e^+e^- Physics

9.00 a.m.	–	9.05 a.m.		Opening
9.05 a.m.	–	9.45 a.m.	**A. Wagner**	New Frontiers in e^+e^- Collisions: The Physics Potential of TESLA
9.45 a.m.	–	9.55 a.m.		Discussion
9.55 a.m.	–	10.15 a.m.	**M. Jack**	Fermion Pair Production with ZFITTER at an e^+e^- Linear Collider
10.15 a.m.	–	10.25 a.m.		Discussion
10.25 a.m.	–	10.55 a.m.		**Coffee Break**
10.55 a.m.	–	11.50 a.m.	**M. Veltman**	Cancelling Infinities
11.50 p.m.	–	12.00 p.m.		Discussion
12.00 a.m.	–	12.20 a.m.	**A. Ballestrero**	Fermion Loops, Single W Production, and Non-Conserved Currents
12.20 a.m.	–	12.30 a.m.		Discussion
12.30 a.m.	–	12.50 a.m.	**F. Piccinini**	Electroweak Physics in Six Fermion Processes at Future Colliders
12.50 a.m.	–	1.00 p.m.		Discussion
1.00 p.m.	–	2.00 p.m.		**Lunch Break**

Monday, April 10: Afternoon Session

e^+e^- Physics

2.00 p.m. – 2.20 p.m.	**J. Kodaira**	The Spin Correlations in Top Quark Production: QCD Corrections vs Anomalous Coupling
2.20 p.m. – 2.30 p.m.		Discussion
2.30 p.m. – 2.50 p.m.	**F. Del Aguila**	Top Mixing in Effective Theories
2.50 p.m. – 3.00 p.m.		Discussion
3.00 p.m. – 3.20 p.m.	**K. Chetyrkin**	$R(s)$ in Perturbative QCD
3.20 p.m. – 3.30 p.m.		Discussion
3.30 p.m. – 4.00 p.m.		**Coffee Break**
4.00 p.m. – 4.20 p.m.	**T. van Ritbergen**	The 3-loop Conversion between $\overline{\mathrm{MS}}$ Pole Masses and Semileptonic b-Decays
4.20 p.m. – 4.30 p.m.		Discussion
4.30 p.m. – 4.50 p.m.	**M. Steinhauser**	The Relation between the $\overline{\mathrm{MS}}$ and the On-Shell Quark Mass at α_s^3
4.50 p.m. – 5.00 p.m.		Discussion
5.00 p.m. – 5.20 a.m.	**J. Illana**	Lepton Flavour Violation in Z Decays
5.20 p.m. – 5.30 p.m.		Discussion
5.30 p.m. – 5.50 p.m.	**D. Miller**	The Triple Higgs Self-Coupling at Future e^+e^- Colliders
5.50 p.m. – 6.00 p.m.		Discussion

6.15 p.m. *Guided Tour to Fortress Königstein*

8.30 p.m. **Dinner**

Tuesday, April 11: Morning Session

Proton Structure

7.30 a.m.	–	9.00 a.m.		**Breakfast**
9.00 a.m.	–	9.40 a.m.	**S. Schlenstedt**	Precise Measurements at HERA: Now and Then
9.40 a.m.	–	9.50 a.m.		Discussion
9.50 a.m.	–	10.10 a.m.	**J. Vermaseren**	Mathematics for Structure Functions
10.10 a.m.	–	10.20 a.m.		Discussion
10.20 a.m.	–	10.40 a.m.	**S. Moch**	Structure Functions: Reconstruction from Mellin Moments
10.40 a.m.	–	10.50 a.m.		Discussion
10.50 a.m.	–	11.20 a.m.		**Coffee Break**
11.20 a.m.	–	11.40 a.m.	**A. Vogt**	Higher Order QCD Effects in Deep Inelastic Structure Functions
11.40 a.m.	–	11.50 a.m.		Discussion
11.50 a.m.	–	12.10 p.m.	**J. Smith**	Two-Loop Matching Conditions for $\overline{\mathrm{MS}}$ Parton Densities
12.10 p.m.	–	12.20 p.m.		Discussion
12.20 p.m.	–	12.40 p.m.	**D. Robaschik**	Quantum Field Theoretic Treatment of the Non-Forward Compton Amplitude
12.40 p.m.	–	12.50 p.m.		Discussion
12.50 p.m.	–	2.15 p.m.		**Lunch Break**

Tuesday, April 11: Afternoon Session

Proton Structure

2.15 p.m.	–	2.35 p.m.	**K. Sasaki**	Parton Distributions in the Virtual Photon Target and Factorization Scheme Dependence
2.35 p.m.	–	2.45 p.m.		Discussion
2.45 p.m.	–	3.05 p.m.	**J. Bartels**	Twist 4 at Small x and Low Q^2 at HERA
3.05 p.m.	–	3.15 p.m.		Discussion
3.15 p.m.	–	3.45 p.m.		**Coffee Break**

General Aspects

3.45 p.m.	–	4.05 p.m.	**K. Sibold**	The Supersymmetry Ward Identity and its Use in Supersymmetric QED
4.05 p.m.	–	4.15 p.m.		Discussion
4.15 p.m.	–	4.35 p.m.	**T. Hahn**	Automatic Loop Calculations with FeynArts and FormCalc
4.35 p.m.	–	4.45 p.m.		Discussion
4.45 p.m.	–	5.05 p.m.	**O. Tarasov**	Application and Explicit Solution of d-Shift Recurrence Relations
5.05 p.m.	–	5.15 p.m.		Discussion
5.15 p.m.	–	5.35 p.m.	**S. Weinzierl**	Calculational Techniques for Single Top Production
5.35 p.m.	–	5.45 p.m.		Discussion
5.45 p.m.	–	5.55 p.m.	**T. Gehrmann**	Differential Equations for Two–Loop Four Point Functions
5.55 p.m.	–	6.00 p.m.		Discussion
6.00 p.m.	–	7.00 p.m.		**Dinner**

7.30 p.m. *Organ Concert at the Church of Lohmen*

Wednesday, April 12: Morning Session

7.30 a.m.	–	8.30 a.m.		**Breakfast**

pp Physics

8.30 a.m.	–	9.10 a.m.	**M. Pepe-Altarelli**	The Challenge of Precision Measurements at LHC
9.10 a.m.	–	9.20 a.m.		Discussion
9.20 a.m.	–	9.40 a.m.	**M. Moretti**	A New Approach to Multijet Calculations in Hadron Collisions
9.40 a.m.	–	9.50 a.m.		Discussion
9.50 a.m.	–	10.10 a.m.	**N. Glover**	Progress Towards 2 to 2 Scattering at Two Loops
10.10 a.m.	–	10.20 a.m.		Discussion
10.20 a.m.	–	10.50 a.m.		**Coffee Break**
10.50 a.m.	–	11.10 a.m.	**A. Ghinculov**	Loops and Legs Beyond Perturbation Theory
11.10 a.m.	–	11.20 a.m.		Discussion
11.20 a.m.	–	11.40 a.m.	**S. Heinemeyer**	Two Loop Corrections to Higgs Production and Decay in the MMSM
11.40 a.m.	–	11.50 a.m.		Discussion
11.50 a.m.	–	12.10 a.m.	**P. Osland**	Quark-Gluon Vertex in Arbitrary Gauge and Dimension
12.10 a.m.	–	12.20 a.m.		Discussion
12.20 p.m.	–	12.40 p.m.	**M. Spira**	Gaugino Pair Production at Hadron Colliders
12.40 p.m.	–	12.50 p.m.		Discussion
12.50 p.m.	–	2.30 p.m.		**Lunch Break**

2.30 p.m. *Hiking Tour in the Elb-Sandstone Mountains*

7.00 p.m.				**Dinner**

Thursday, April 13: Morning Session

e^+e^- Physics

9.00 a.m.	–	9.40 a.m.	**G. Quast**	Precision Measurements of Electroweak Gauge Boson Properties at LEP
9.40 a.m.	–	9.50 a.m.		Discussion
9.50 a.m.	–	10.10 a.m.	**W. Beenakker**	Double Logarithmic Effects in the Standard Model
10.10 a.m.	–	10.20 a.m.		Discussion
10.20 a.m.	–	10.40 a.m.	**J. Kühn**	Sudakov Logarithms in Electroweak Interactions
10.40 a.m.	–	10.50 a.m.		Discussion
10.50 a.m.	–	11.20 a.m.	**Coffee Break**	
11.20 a.m.	–	11.40 p.m.	**S. Dittmaier**	RacoonWW: a MC generator for $e^+e^- \to WW \to 4f$
11.40 p.m.	–	11.50 p.m.		Discussion
11.50 a.m.	–	12.10 a.m.	**S. Jadach**	Coherent Exclusive Exponentiation for Precision Monte Carlo Calculations
12.10 a.m.	–	12.20 a.m.		Discussion
12.20 p.m.	–	12.40 p.m.	**J. Fleischer**	Two Loop Self Energies for Vector Particles in the Standard Model
12.40 a.m.	–	12.50 a.m.		Discussion
12.50 a.m.	–	2.00 p.m.		**Lunch Break**

Thursday, April 13: Afternoon Session

Low Energy Processes

2.00 p.m. – 2.20 p.m.	**E. Remiddi**	Precise Evaluation of the Electron $(g-2)$ at Four Loops: the Algebraic Way
2.20 p.m. – 2.30 p.m.		Discussion
2.30 p.m. – 2.50 p.m.	**A. Freitas**	Exact Results for Fermionic Two-Loop Contributions to Muon Decay
2.50 p.m. – 3.00 p.m.		Discussion
3.00 p.m. – 3.30 p.m.		**Coffee Break**

General Aspects

3.30 p.m. – 3.50 p.m.	**O. Veretin**	Progress in Calculation of Massless On-Shell Double Boxes
3.50 p.m. – 4.00 p.m.		Discussion
4.00 p.m. – 4.20 p.m.	**B. Tausk**	The Non-Planar Massless Double Box Diagram
4.20 p.m. – 4.30 p.m.		Discussion
4.30 p.m. – 4.50 p.m.	**A. Davydychev**	ε-Expansion of Dimensionally Regulated Feynman Diagrams
4.50 p.m. – 5.00 p.m.		Discussion
5.00 p.m. – 5.10 p.m.	**G. Heinrich**	A Subtraction Method for Infrared Divergent N-Loop Diagrams in n Dimensions
5.10 p.m. – 5.15 p.m.		Discussion

7.30 p.m. *Banquet*

Friday, April 14: Morning Session

B Physics

9.00 a.m.	–	9.40 a.m.	**K. Schubert**	Search for CP-Violation in B-Meson Decays
9.40 a.m.	–	9.50 a.m.		Discussion

General Aspects

9.50 a.m.	–	10.10 a.m.	**D. Kreimer**	Feynman Diagrams as Generalized Polylogarithms: Shuffles and Pentagons
10.10 a.m.	–	10.20 a.m.		Discussion
10.20 p.m.	–	10.50 p.m.		**Coffee Break**
10.50 a.m.	–	11.10 a.m.	**G. Weiglein**	Higgs-mass Predictions and Electroweak Precision Observables in the SM and MSSM
11.10 a.m.	–	11.20 a.m.		Discussion
11.20 a.m.	–	11.40 a.m.	**D. Broadhurst**	Interplay of Combinatorics with Analysis in Quantum Field Theory
11.40 a.m.	–	11.50 a.m.		Discussion
11.50 p.m.				**Lunch**
13.00 p.m.				**Departure**