Dr. Tord Riemann

executive summary of curriculum vitae and research data

Affiliation

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Education

1975	Diploma / Humboldt-Universität zu Berlin
1977	Ph.D. / Humboldt-Universität zu Berlin Thesis: “A Graph Scheme for the Fermion Green's Function Based on the Functional Integral”

Professional Experience

1977-1992	Staff scientific associate at IfH/AdW (Institut für Hochenergiephysik der Akademie der Wissenschaften der DDR)
1992-jetzt	Senior staff scientific associate at DESY
1983-1987	Research associate at LTPh of JINR Dubna, Russia (Laboratory for Theoretical Physics of JINR, Dubna, Russia)
1991-1992	Research associate at CERN, TH-Division

Further activities (selected)

09/1993-08/1995, 04/2004-04/2008, 08/2009-07/2011 Spokesperson of the Theory Group, DESY, Zeuthen

since 1992 Founder and organizer of the bi-annual conference “Loops and Legs”, DESY

since 2002 Member of the advisory boards of the conference series Radcor, ACAT, Matter to the Deepest

since 2005 Founder and organizer of the CAPP schools ``Computer Algebra and Particle Physics“, DESY (since 2015: Hamburg Univ.)

2006-2012 Chair of the HISS schools ``Calculations for Modern and Future Colliders”, DESY and JINR, Dubna, Russia

2006-2012 Co-chair of the CALC conferences, JINR, Dubna, Russia

2015 LOC of the CALC conference, JINR, Dubna, Russia

since 2006 Regular lecture courses ``Renormalization and phenomenology of the standard model” at Potsdam University and at University Dresden

since 1992 Advisor: 2 diploma theses, 7 PhD theses

2011-now Research project: Ethical and legal problems related to development and sharing of software in international academic basic research

09/1993-06/1996 Node coordinator of EUNEPHESMA, "Phenomenology of the Standard Model and alternatives for present and future high energy colliders", HCM project, framework 3C

08/2000-07/2004 Node coordinator of TMR Network (RTN) of the European Commission: "Particle Physics Phenomenology at High Energy Colliders"

12/2006-11/2010 Node coordinator, member of steering committee, and network task coordi nator for "Tools" of TMR Network (RTN) of the European Commission: "HEPTOOLS - Tools and Precision Calculations for Physics Discoveries at Colliders"

Award:
In 2001, the ZFITTER team was awarded the „First Prize“ of JINR, Dubna, Russia by the Scientific Council of JINR for the project '“Theoretical support of experiments at the Z resonance on precision tests of the standard model (Project ZFITTER)“.

Research activities

Research fields:
– Perturbative quantum field theory with applications to experimental problems of high energy physics;
– Development and support of physics software;
– Cooperations with experimental groups;
– Methodical developments for the analytical and numerical calculation of complicated Feynman integrals;
– Many scientific contributions to massive one- and two-loop electroweak corrections at collider energies

1983-now Biggest project: ZFITTER (2,2 Mio. Euro Full Time Equivalents); since 2005 spokesperson of the collaboration

1978-now Theoretical contributions to collider physics and to the calculation of Feynman diagrams, mostly including software projects, e.g.:

ZFITTER – Complete semi-analytical electroweak corrections to Z boson physics at LEP
Bhagene – Monte Carlo (MC) generator for Bhabha scattering at LEP; my contrib.: electro weak library to the project
SMATASY – S-matrix approach to the Z resonance at LEP; an interface to ZFITTER
ZEFIT – QED corrections to searches of Z' physics around the Z resonance or at high energies
HECTOR – Complete semi-analytical electroweak one-loop corrections to Z and W boson physics at LEP
PHOKHARA – MC program for meson colliders; our contrib. (with U. Katowice): NLO correc tions from 5-point functions (radiative loop corrections) to the project
BABAYAGA – MC program for Bhabha scattering; our contrib. (with U. Katowice): NNLO corrections from two-loop QED corrections with heavy particles or with hadrons to the project
PJFry – A library for tensor reduction of one-loop Feynman integrals with special treatment of inverse Gram problems (with U. Katowice)
Bhabha Scattering – Several programs with numerical results of analytical calculations (with U. Katowice)
DIANA_aITALC – Automatic genration of Fortran codes for two-fermion production in e+e- collisions (with U. Katowice)
topfit – Complete semi-analytical electroweak one-loop corrections to massive two-fermion production with photon and Z boson intermediate states
AMBRE – Derivation of Mellin-Barnes integral representations of complicated Feynman integrals with tensor structure up to three loops (with U. Katowice)
Mbnumerics – Advanced numerical evaluation of Mellin-Barnes integrals, usually for output from running AMBRE/MB before (with U. Katowice)
Mbsums – Transformation of Mellin-Barnes integrals into multiple sums, usually for output from running AMBRE/MB before (with U. Katowice)
etc.
For a more detailed description of life data and scientific activities please consult the long version of my Currculum Vitae document.