Prof. Dr. Christof Wetterich

Personal Information

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Date:	April 12, 1952, Freiburg

Scientific Career and International Experience

2006-:	External Member, MPI for Nuclear Physics, HD
1999-2000:	Dean, Faculty of Physics and Astronomy
1992-:	Universität Heidelberg, chair of theoretical physics
1985-1992:	DESY (Hamburg), permanent staff
1985:	Heisenberg Stipendium (at CERN)
1983-1985:	Universität Bern
1983:	Habilitation (Universität Freiburg)
1981-1983:	Fellow at CERN (Geneva)
1979:	Dissertation (PhD) (summa cum laude)
1977-1981:	Employed by the University of Freiburg
1972-1978:	Studies in Physics at Université Paris VII, University of Cologne, University of Freiburg, Diploma 1978

Main Research Fields

Cosmology:	First proposal of a dynamical Dark Energy (quintessence) (1987). Proposal of Dark Energy – Dark Matter coupling (1995). Investigation of time variation of fundamental constants in quintessence models (1987). Analysis of the role of Early Dark Energy for CMB and structure formation. Possible solution of “why now problem for dark energy” by growing neutrino mass. Inflation as transition from higher dimensions to effective four dimensions (1983, with Q. Shafi).
Particle Physics:	Neutrino masses and oscillations, proposal of triplet mechanism as alternative to seesaw. Explanation of three generations of quarks and leptons by higher dimensional chirality index (1983) (e.g. used in superstring theories). Spinor gravity as proposal for quantum gravity.
Development of new methods:	Modern form of functional renormalization (effective average action) (1993).
Phase transitions:	Proposal of crossover replacing electroweak phase transition (1983, with M. Reuter). Investigation of transition to quark gluon plasma.
Non-equilibrium	Proposal of prethermalization. Quantum Field Theory:
Ultracold atoms:	Investigation of BCS-BEC crossover by functional renormalization.
Quantum theory:	Emergence of quantum physics from classical statistics.

Service to the Community

2008-:	Member Academic Advisory Committee, Heidelberg University
2006-:	Speaker, Transregional Project TRR33 “The Dark Universe” (Bonn, Heidelberg, Munich)
1998-2008:	Member Selection Committee for Alexander von Humboldt Awards
1996-1998:	Member Scientific Council DESY

Stipends, Awards and Honours

2012:	ERC Advanced Grant
2006:	Member, Heidelberger Akademie der Wissenschaften
2005.	Max-Planck Research Prize
1985:	Heisenberg Stipendium
1979:	Goedecke Prize

The Ten Most Important Publications

Title: Particle-hole fluctuations in the BCS-BEC crossover.
Authors: S. Flörchinger, M. Scherer, S. Diehl, C. Wetterich
Journal: Phys. Rev. B78, 174528 (2008)

Title: Quintessence cosmologies with a growing matter component.
Authors: L. Amendola, M. Baldi, C. Wetterich
Journal: Phys. Rev. D78, 023015 (2008)

Title: Chemical freeze-out and the QCD phase transition temperature.
Authors: P. Braun-Munzinger, J. Stachel, C. Wetterich
Journal: Phys. Lett. B, 596, 61 (2004)

Title: Prethermalization.
Authors: J. Berges, Sz. Borsányi, C. Wetterich
Journal: Phys. Rev. Lett., 93, 142002 (2004)

Title: Crossover quintessence and cosmological history of fundamental constants.
Author: C. Wetterich
Journal: Phys. Lett. B, 561, 10-16 (2003)

Title: Spinor gravity.
Authors: A. Hebecker, C. Wetterich
Journal: Phys. Lett. B, 574, 269-275 (2003)

Title: Exact evolution equation for effective potential.
Author: C. Wetterich
Journal: Phys. Lett. B301, 90-94 (1993)

Title: The cosmon model for an asymptotically vanishing time dependent cosmological ‘constant’.
Author: C. Wetterich
Journal: Astron. Astrophys., 301, 321-328 (1995)

Title: Cosmology and the fate of dilatation symmetry.
Author: C. Wetterich
Journal: Nucl. Phys. B, 302, 668 (1988)

Title: Proton lifetime and fermion masses in an SO(10) model.
Authors: G. Lazarides, Q. Shafi, C. Wetterich
Journal: Nucl. Phys. B, 181, 287 (1981)