

**Name: Günter Sigl**

Date of birth: 16.05.1964

**Professional employment and academic education:**

Since 2007 Full Professor (W3) at the Universität Hamburg  
2005 – 2007 directeur de recherche of the French CNRS, at APC, Paris, France  
1999 – 2005 chargé de recherche of the French CNRS, at IAP, Paris, France  
1997 – 1999 research scientist at University of Chicago, Illinois, USA  
1993 – 1996 Feodor Lynen fellow (Alexander-von-Humboldt foundation), research associate, University of Chicago, Illinois, USA  
1990 – 1993 PhD in Physics, Ludwig Maximilians Universität München  
1984 – 1990 Diploma in Physics at the Universität München

**Honours, distinctions and awards, scholarships, medals:**

Since 2011 Coordinator of the theory working package and member of executive board in the Helmholtz Alliance for Astroparticle Physics (HAP)  
2010 – 2015 theory representative in the national "Komitee für Astroteilchenphysik" (KAT)  
2005 – 2009 Coordinator of the N6 European Network of Theoretical Astroparticle Physics within EU fp6 infrastructure ILIAS (Integrated Large Infrastructures for Astroparticle Science).  
1993 – 1996 Feodor Lynen fellow of the Alexander-von-Humboldt foundation

**Supervisory work:**

Since 1996 Supervision of 2 Bachelor-students, 8 Diploma/Master-students, 14 PhD-students, and 8 PostDocs

**Selected professional memberships:**

Since 2014 deputy spokesperson of the Wolfgang Pauli center for theoretical physics in Hamburg  
Since 2007 Member of the Pierre Auger Experiment  
2007 – 2011 Member of the peer review committee of the Astroparticle Physics European Coordination (ApPEC)  
2003 – 2007 Member of the national science advisory committee for the national program on astroparticle physics in France

**Selected research topics and accomplishments:**

My main research is at the interface of particle physics with astrophysics and cosmology. In particular I am working on cosmic ray physics, also as a member of the Pierre Auger experiment and co-developer of our public software package CRPropa for simulation of high energy cosmic ray propagation in a structured Universe, multi messenger studies including gravitational waves, oscillation phenomena involving neutrinos and axions, indirect detection of dark matter, and the origin and evolution of cosmic magnetic fields in astrophysical plasmas and in the early Universe. I recently started a collaboration with the QCD experts Sven Moch and Bernd Kniehl to quantify hadronic interaction uncertainties in air shower physics which is important for interpreting high energy cosmic ray and neutrino data. Finally, in 2016 I published an 800 page monograph on astroparticle physics theory and phenomenology which covers most topics of astroparticle physics.

### Ten selected publications:

1. G. Sigl, "Astroparticle Physics: Theory and Phenomenology," Atlantis Press/Springer, December 2016, DOI: 10.2991/978-94-6239-243-4.
2. G. Sigl and G. Raffelt, "General kinetic description of relativistic mixed neutrinos," Nucl. Phys. B **406** (1993) 423.
3. G. Sigl, D. N. Schramm and P. Bhattacharjee, "On the origin of highest energy cosmic rays", Astropart. Phys. **2** (1994) 401 [astro-ph/9403039].
4. G. Sigl, A. V. Olinto and K. Jedamzik, "Primordial magnetic fields from cosmological first order phase transitions," Phys. Rev. D **55** (1997) 4582 [astro-ph/9610201].
5. P. Bhattacharjee and G. Sigl, "Origin and propagation of extremely high-energy cosmic rays," Phys. Rept. **327** (2000) 109 [astro-ph/9811011].
6. G. Sigl, F. Miniati and T. A. Ensslin, "Ultrahigh energy cosmic ray probes of large scale structure and magnetic fields," Phys. Rev. D **70** (2004) 043007 [astro-ph/0401084].
7. A. Buonanno, G. Sigl, G. G. Raffelt, H. T. Janka and E. Muller, "Stochastic gravitational wave background from cosmological supernovae," Phys. Rev. D **72** (2005) 084001 [astro-ph/0412277].
8. G. Bertone, G. Servant and G. Sigl, "Indirect detection of Kaluza-Klein dark matter," Phys. Rev. D **68** (2003) 044008 [hep-ph/0211342].
9. M. Galaverni and G. Sigl, "Lorentz Violation in the Photon Sector and Ultra-High Energy Cosmic Rays," Phys. Rev. Lett. **100** (2008) 021102 [arXiv:0708.1737 [astro-ph]].
10. S. Yoshida, G. Sigl and S. j. Lee, "Extremely high-energy neutrinos, neutrino hot dark matter, and the highest energy cosmic rays," Phys. Rev. Lett. **81** (1998) 5505 [hep-ph/9808324].