

Curriculum Vitae of Peter Grünberg

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Birth: May 18, 1939



Education:

- Technical University Darmstadt, Germany (PhD, 1969)
- University of Cologne, Germany (habilitation, 1984)

Positions:

- 1969-1972: post-doc, Carleton Univ. Ottawa, Canada
- since 1972: research scientist, Forschungszentrum Jülich
- 1984-1985: visiting scientist, Argonne Nat. Lab. USA
- since 1984: lecturer, later apl Professor, University of Cologne
- 1998: visiting professor, Tohoku University, Sendai, Japan

Honors:

- 1994: APS International Prize for New Materials of the APS (together with A. Fert and S.S.P. Parkin)
- 1995: Prize for Magnetism of the IUPAP (together with A. Fert)
- 1996: Technology Prize of the Association of Sponsors of the Forschungszentrum Jülich
- 1997: Hewlett-Packard Europhysics Prize of the European Physical Society (together with A. Fert and S.S.P. Parkin)
- 1998: German Science Prize of the President of the Federal Republic of Germany
- 2002: Doctor Honoris Causa (University of Bochum)
- 2003: External member of the "Max-Planck-Institut für Mikrostrukturphysik" in Halle/Saale, Germany
- 2004: Manfred-von-Ardenne Prize of the European Society of Thin Films
- 2006: "European Inventor of the Year" Award in the Category Universities and Research Institutions, European Patent Office and European Union
- 2007: "Stern-Gerlach Medal" of German Physical Society
- 2007: "Japan Prize" Category: Innovative Devices Inspired by Basic Research, The Science and Technology Foundation of Japan (together with A.Fert)
- 2007: Wolf Foundation Prize of Physics, Israel (together with A. Fert)

Publications: about 170 papers in refereed journals, 5 books

Publications of Peter Grünberg

Most important publications:

P. Grünberg, R. Schreiber, Y. Pang, M. B. Brodsky, and H. Sowers. "Layered Magnetic Structures: Evidence for Antiferromagnetic Coupling of Fe Layers across Cr Interlayers", *Phys. Rev. Lett.* **57**, 2442 (1986).

G. Binasch, P. Grünberg, F. Saurenbach, and W. Zinn. "Enhanced magnetoresistance in layered magnetic structures with antiferromagnetic interlayer exchange", *Phys. Rev. B* **39**, 4828 (1989).

M. Rührig, R. Schäfer, A. Hubert, R. Mosler, J. A. Wolf, S. Demokritov, and P. Grünberg. "Domain Observations on Fe-Cr-Fe Layered Structures – Evidence for a Biquadratic Coupling Effect", *phys. stat. sol. (a)* **125**, 635 (1991).

S. Demokritov, J. A. Wolf, and P. Grünberg. "Evidence for Oscillations in the Interlayer Coupling of Fe Films Across Cr Films from Spin Waves and M(H) Curves", *Europhys. Lett.* **15**(8), 881 (1991).

D. E. Bürgler, P. Grünberg, S. O. Demokritov, and M. T. Johnson. In "Handbook of Magnetic Materials", Vol. 13, ed. K. H. J. Buschow, chapter "Interlayer Exchange Coupling in Layered Magnetic Structures", pp. 1–85 (Elsevier, Amsterdam, 2001).

P. Grünberg. "Layered Magnetic Structures: History, Highlights, Applications", *Physics Today*, May, 31 (2001).

R. R. Gareev, D. E. Bürgler, M. Buchmeier, R. Schreiber, and P. Grünberg. "Very strong interlayer exchange coupling in epitaxial Fe/Fe_{1-x}Si_x/Fe trilayers (x = 0.4–1.0)", *J. Magn. Magn. Mater.* **240**, 237 (2002).

Recent Publications (2005-2007):

H. Braak, R.R. Gareev, D.E. Bürgler, P. Grünberg, R. Schreiber, C.M. Schneider. "Magnetic characteristics of epitaxial Ge(Mn,Fe) diluted films – a new room temperature magnetic semiconductor?", *J. Magn. Magn. Mater.* **286**, 46 (2005).

H. Dassow, R. Lehdorff, D.E. Bürgler, M. Buchmeier, P.A. Grünberg, C.M. Schneider, A. van der Hart: "Normal and inverse current-induced magnetization switching in a single nanopillar", *Appl. Phys. Lett.* **89**, 222511 (2006).

M. Breidbach, D.E. Bürgler, P. Grünberg, "Current-in-plane giant magnetoresistance: The effect of interface roughness and spin-depolarization due to the proximity of a buffer layer", *J. Magn. Magn. Mater.* **307**, L1 (2006).

T. Damm, M. Buchmeier, A. Schindler, D.E. Bürgler, P. Grünberg, C.M. Schneider. "Magnetic properties of Fe films and Fe/Si/Fe trilayers grown on GaAs(001) and MgO(001) by ion-beam sputter epitaxy", *J. Appl. Phys.* **99**, 093905 (2006).

P. Grünberg, D.E. Bürgler, H. Dassow, A.D. Rata, C.M. Schneider. "Spin-transfer phenomena in layered magnetic structures: Physical phenomena and material aspects", *Acta Mater.* **55**, 1171 (2007).

List of Patents of Prof. Peter Grünberg

Application Date	Publication Number	Title
16.06.1988	DE 38 20 475 C1 EP 03 468 17 B1 US 4,949,039 JP 265 1015 B2 AT 11 33 86 T DE 589 08 553 D1	Magnetic field sensor with a thin ferromagnetic layer
29.08.1990	DE 40 27 226 A1 EP 04 424 07 A1 JP 432 1913 A	Ferromagnetic thin film magnetic field sensor
26.09.1990	DE 40 30 404 A1	Observation of magnetic structures in material samples - measuring electrical resistance by current flow between sample and metal tip smaller than magnetic structure
18.02.1991	DE 41 04 951 A1 WO 92/15102 A1 JP 65 05129 T EP 05 724 65 B1 AT 13 44 55 T DE 592 05 406 D1 ES 208 3158 T3	Multi-layer system for use in magneto-resistive sensors, and a process for manufacturing it
22.06.1993	DE 43 20 514 A1 WO 95/00950 A1 EP 07 05 475 B1 DE 594 02 455 D1	Magneto-optical storage system using focussed laser beam - comprises ferromagnetic layers separated by thin semiconductor layers
20.09.1995	DE 195 34 856 A1	Digital memory device with spin coupled magnetic layer for read-out and/or write operation
28.01.2002	DE 102 03 466 A1 WO 03/065024 A3	GMR sensor assembly and a synthetic anti-ferromagnet
05.03.2002	DE 102 09 508 A1 WO 03/075278 A3	MRAM data memory and method for storing data in a memory of this type