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**Field of work**

- Head of the CONRAD Observatory
- Geo- /Paleo-/ Rock magnetism

**CV**

Feb 2010 – present    Head of the CONRAD Observatory, ZAMG, Austria  
2007 – 2010            University assistant at the Department for Applied Geosciences  
                                 and Geophysics, Montanuniversität Leoben, Austria  
2001 – 2006            Postdoc at the Department for Earth und Environmental Sciences,  
                                 Geophysics, LMU München, Germany  
1992 – 2001            Student/Researcher at the Department for Earth und  
                                 Environmental Sciences, Geophysics, LMU München, Germany

Habilitation (2009): "*Reconstruction of the Earth's paleomagnetic field during excursions and reversals*"

Dissertation (2001): "*Direction and intensity of the Earth's magnetic field during reversals and excursions of the last 15 Myr*" Final Certification: Dr. rer. nat.

**Current scientific activities** (selection)

- Determination of Earth's magnetic field strength (Austrian Science Fund FWF Project P21221: Geomagnetic field records in volcanic glass)
- Reconstruction of the ancient global magnetic field evolution
- Archeomagnetism
- Member of AGU, EGU, DGG, AGS
- Referee for scientific journals

**Publications**

**Peer reviewed articles and books**

1. Ferk, A., von Aulock, F., **Leonhardt**, R., Hess, K.-U., Dingwell, D.B. 2010. A cooling rate bias in paleointensity determination from volcanic glass: an experimental demonstration. *J. Geophys. Res.*, accepted.
2. **Leonhardt**, R., Saleh, A. and Ferk, A. 2010. Archaeomagnetic field intensity during the Roman period at Siwa and Bahryn oasis, Egypt: Implications for the fidelity of Egyptian archaeomagnetic data. *Archaeometry*, in press.
3. Linder, J. and **Leonhardt**, R. 2009. High resolution full vector record of four consecutive Mid Miocene geomagnetic reversals. *Phys. Earth Planet. Int.*, 177, 88-101.
4. Ferk, A. and **Leonhardt**, R. 2009. The Laschamp geomagnetic field excursion recorded in Icelandic lavas. *Earth Planet. Int.*, 177, 19-30.

5. **Leonhardt**, R., McWilliams, M., Heider, F. and Soffel, H.C., 2009. The Gilsá excursion and the Matuyama/Brunhes transition recorded in  $^{40}\text{Ar}/^{39}\text{Ar}$  dated lavas from Lanai and Maui, Hawaiian Islands. *Geophys. J. Int.*, 179, 43-58.
6. **Leonhardt**, R., Fabian, K., Winklhofer, M., Ferk, A., Kissel, C., and Laj, C., 2009. Paleomagnetic reconstruction of the global geomagnetic field evolution during the Matuyama/Brunhes transition: Iterative Bayesian inversion and independent verification. *Earth Planet. Sci. Lett.*, 278, 87-95
7. Stark, F., **Leonhardt**, R., Faßbinder, J. and Reindel, M. 2009. The Field of Sherds: Reconstructing Geomagnetic Field Variations from Peruvian Potsherds. *In: New Technologies for Archaeology*. Eds: Reindel, M. Wagner, G.A., Springer, Berlin, Heidelberg, pp. 103-116.
8. Fabian, K. and **Leonhardt**, R., 2009. Records of paleomagnetic field variations. *In: Geomagnetic variations. Space-time structure, processes and effects on system Earth*. Eds: Glaßmeier, K.-H., Soffel, H.C., Negendank, J., Springer, Berlin, Heidelberg, pp. 65-106.
9. Lanci, L., Kissel, C., **Leonhardt**, R. and Laj, C., 2008. Morphology of the Iceland Basin Excursion from a spherical harmonics analysis and an iterative Bayesian inversion procedure of sedimentary records. *Phys. Earth Planet. Int.*, 169, 131-139.
10. Winklhofer, M., Fabian, K. and **Leonhardt**, R., 2008. On the possibility of recovering paleo-diurnal magnetic variations in transitional lava flows: I. Constraints from thermoremanence modelling for an experimental protocol. *Phys. Earth Planet. Int.*, 169, 108-116.
11. Verard, C., **Leonhardt**, R., Winklhofer, M., and Fabian, K., 2008. On the possibility of recovering palaeo-diurnal magnetic variations in transitional lava flows: II. An experimental case study. *Phys. Earth Planet. Int.*, 169, 117-130.
12. **Leonhardt**, R., and Fabian, K., 2007. Paleomagnetic reconstruction of the global geomagnetic field evolution during the Matuyama/Brunhes transition: Iterative Bayesian inversion and independent verification. *Earth Planet. Sci. Lett.*, 253, 172-195.
13. Carvallo, C., Roberts, A.P., **Leonhardt**, R., Laj, C., Kissel, C., Perrin, M. and Camps, P., 2006. Selecting samples for paleointensity measurements using first-order reversal curve (FORC) diagrams. *J. Geophys. Res.*, 111, B12103, doi:10.1029/2005JB004126.
14. **Leonhardt**, R., and Soffel, H.C., 2006. The growth, collapse and quiescence of Teno volcano, Tenerife: new constraints from paleomagnetic data. *Int. J. Earth Sci.(Geol. Rundsch.)*, 95, 1053-1064.
15. **Leonhardt**, R., Matzka, J., Nichols, A.R.L. and Dingwell, D.B., 2006. Cooling rate correction of paleointensity determination for volcanic glasses by relaxation geospeedometry. *Earth Planet. Sci. Lett.*, 243, 282-292.
16. **Leonhardt**, R., 2006. Analyzing rock magnetic measurements: The RockMagAnalyzer 1.0 software. *Comp. Geosci.*, 32, 1420-1431.
17. Wehland, F., **Leonhardt**, R., Vadeboin, F. and Appel, E., 2005. Magnetic interaction analysis of basaltic samples and pre-selection for absolute palaeointensity measurements. *Geophys. J. Int.*, 162, 315-320.
18. Khesin, B., Feinstein, S., Itkis, S., Vapnik, Y. and **Leonhardt**, R., 2005. Magnetic study of meta-morphosed sedimentary rocks of the Hatrurim formation, Israel. *Geophys. J. Int.*, 162, 49-63.
19. **Leonhardt**, R., Heunemann, C. and Krása, D., 2004. Analyzing absolute paleointensity determinations: Acceptance criteria and the software ThellierTool4.0. *Geochem. Geophys. Geosys.*, 5, Q12016.
20. **Leonhardt**, R., Krása, D. and Coe, R.S., 2004. Multidomain behavior during Thellier paleointensity experiments: a phenomenological model. *Phys. Earth Planet. Int.*, 147, 127-140.
21. Coe, R.S., Riisager, J. Plenier, G., **Leonhardt**, R. and Krása, D., 2004. Multidomain behavior during Thellier paleointensity experiments: results from the 1915 Mt. Lassen flow. *Phys. Earth Planet. Int.*, 147, 141-153.

22. **Leonhardt**, R., Matzka, J. and Menor, E.A., 2003. Absolute paleointensities and paleodirections of Miocene and Pliocene lavas from Fernando de Noronha, Brazil. *Phys. Earth Planet. Int.*, 139, 285-303.
23. Krása, D., Heunemann, C., **Leonhardt**, R., and Petersen, N., 2003. Experimental procedure to detect multidomain remanence during Thellier-type experiments. *Phys. Chem. Earth* 28, 681-687.
24. **Leonhardt**, R. and Soffel, A., 2002. A reversal of the Earth's magnetic field recorded in mid Miocene lava flows of Gran Canaria, Paleointensities. *J. Geophys. Res.*, 107(B11), 2299, doi: 10.1029/2001JB000949.
25. **Leonhardt**, R., Matzka, J., Hufenbecher, F., Heider, F., and Soffel, A., 2002. A reversal of the Earth's magnetic field recorded in mid Miocene lava flows of Gran Canaria, Paleodirections. *J. Geophys. Res.* 107(B1), 2024, doi: 10.1029/2001JB000322.
26. **Leonhardt**, R., Hufenbecher, F., Heider, F., and Soffel, A., 2000. High absolute paleointensity during a mid Miocene excursion of the Earth's magnetic field. *Earth Planet. Sci. Lett.* 184, 141-154.
27. **Leonhardt**, R., Heider, F., and Hayashida, A., 1999. Relative geomagnetic field intensity across the Jaramillo subchron in sediments from the California margin: Ocean Drilling Program Leg 167. *J. Geophys. Res.* 104, 29133-29146.
28. Hayashida, A., Verosub, K.L., Heider, F., and **Leonhardt**, R., 1999. Magnetostratigraphy and relative palaeointensity of late Neogene sediments at ODP Leg 167 Site 1010 off Baja California. *Geophys. J. Int.* 139, 829-840.

### Invited presentations

1. Leonhardt, R.: Domain state related bias in absolute paleointensity determination. - invited IAGA 2009 . Sopron am: 23.08.2009
2. Leonhardt, R., The paleomagnetic record of reversals and excursions. - invited: International Space Science Institute - Workshop "Terrestrial magnetism" . Bern am: 10.03.2009
3. Leonhardt, R.; Fabian, K.; Schnepf, E., Global evolution of the Earth's magnetic field during the Holocene. - invited: EGU 2008. Wien am: 16.04.2008
4. Leonhardt, R., Global evolution of the Earth's magnetic field during the Holocene. - invited: Geophysics Seminar. ETH Zürich am: 31.10.2008
5. Leonhardt, R.; Fabian, K.; Winklhofer, M.; Ferk, A.; Laj, C.; Kissel, C., Geomagnetic field evolution during the Laschamp excursion. - invited: International Conference on Rock Magnetism. Cargese am: 26.06.2008
6. Leonhardt, R.; Global reconstruction of geomagnetic field variations. - invited: Geophysics Seminar, Gif-sur-Yvette Cédex, CNRS, Paris am: 16.11.2007
7. Leonhardt, R., Scherbenfelder: Rekonstruktion von Erdmagnetfeldschwankungen mithilfe präkolumbianischer Tonscherben. - invited: Bundesministerium für Bildung und Forschung. Bonn am: 14.06.2007
8. Leonhardt, R., Magnetic cooling rate dependency and paleointensity determination. - invited: IAGA 2007. Perugia am: 02.07.2007
9. Leonhardt, R.; Fabian, K., Paleomagnetic reconstruction of the global geomagnetic field evolution during the Matuyama/Brunhes transition. - invited: EGU 2007. Wien am: 18.04.2007

### Recent conference proceedings and other publications (selected)

1. Leonhardt, R.; Fabian, K.; Winklhofer, M.; Ferk, A.; Laj, C.; Kissel, C.: Geomagnetic field evolution during reversals and excursions: Comparing Bayesian inversion results from the Matuyama/Brunhes reversal and the Laschamp excursion. EGU 2009. Vienna

2. von Aulock, F. W.; Ferk, A.; Leonhardt, R.; Hess, K.-U.; Dingwell, D. B.: The Influence of Cooling Rates on Paleointensity of Volcanic Glasses: an Experimental Approach on Synthetic Glass. EGU 2009. Vienna.
3. Niesner, E.; Leonhardt, R.; Scholger, R.: High resolution geophysical prospecting for the delineation of subsurface archaeological objects. - in: EGU 2009. Vienna  
Ferk, A.; Leonhardt, R.: The Laschamp geomagnetic field excursion recorded in Icelandic lavas. EGU 2009. Vienna
4. Laj, C.; Kissel, C.; Leonhardt, R.; Fabian, K.; Winklhofer, M.; Ferk, A.; Ninnemann, U. S.:  
Towards a global view of the Laschamp excursion. - invited - EGU 2009. Vienna
5. Fabian, K.; Leonhardt, R.: A guide to multiple-specimen paleointensity. IAGA 2009 . Sopron
6. Ferk, A.; Leonhardt, R.; Richard, D.; v. Aulock, F.; Hess, K.-U.; Dingwell, D. B.: Volcanic Glass - an Ideal Recording Material?. American Geophysical Union Fall Meeting 2008. San Francisco
7. Stark, F.; Leonhardt, R.; Fassbinder, J.; Reindel, M.: Archeointensities from Peruvian ceramics: Implication for the occurrence of archeomagnetic jerks and their relationship to climatic changes. EGU 2008. Wien
8. Lanci, L.; Kissel, C.; Leonhardt, R.; Laj, C.: Morphology of the Iceland Basin Excursion from a spherical harmonic analysis of sedimentary records. EGU 2008. Wien
9. Ferk, A.; Leonhardt, R.; Richard, D.; Dingwell, D. B.: Paleointensity determination on subaerial volcanic glass. EGU 2008. Wien
10. Fabian, K.; McEnroe, S. A.; Leonhardt, R.; Hofmann, D.: Which theories of remanence acquisition are necessary to improve paleointensity determinations?. International Conference on Rock Magnetism. Cargese
11. Fabian, K.; Leonhardt, R.: Theoretical analysis and experimental tests of multiple specimen absolute paleointensity determination techniques. EGU 2007. Wien
12. Leonhardt, R.; Fabian, K.: Paleomagnetic reconstruction of the global geomagnetic field evolution during the Matuyama/Brunhes transition. EGU 2007. Wien
13. Linder, J.; Leonhardt, R.: Paleomagnetic directions and intensities across a Middle Miocene geomagnetic reversal sequence recorded in East Iceland. EGU 2007. Wien
14. Leonhardt, R.; Fabian, K.: Paleomagnetic reconstruction of the global geomagnetic field evolution during the Matuyama/Brunhes transition. IAGA 2007. Perugia
15. Leonhardt, R.; Fabian, K.: Variations of the geomagnetic field geometry during the past 5000 years. EGU 2007. Wien
16. Ferk, A.; Leonhardt, R.: Icelandic lavas record quasi-continuous paleointensities of the Laschamp geomagnetic field excursion. EGU 2007. Wien
17. Leonhardt, R.; Fabian, K.; Ferk, A.; Winklhofer, M.: Reconstructing the global geomagnetic field during the Laschamp excursion. EGU 2007. Wien
18. Fabian, K.; Leonhardt, R.: Theoretical analysis and experimental tests of multiple specimen absolute paleointensity determination techniques. IAGA 2007. Perugia, Italien
19. Leonhardt, R.; Fabian, K.: Geomagnetic field variation during the past 5000 years: A global reconstruction. IAGA 2007. Perugia, Italien
20. Leonhardt, R.; Fabian, K.; Ferk, A.; Winklhofer, M.: The global geomagnetic field during the Laschamp excursion. - in: IAGA 2007. Perugia, Italien
21. Leonhardt, R.; Fabian, K.; Heunemann, C.: Polarity Reversals. Terra Nostra. (2006), S. 40 - 47