

# Guido Tarrach

## Projects

8. Fundación Andes (2002–2003): Participating scientist,  $\approx$  320.000 USD.
7. Programa de Cooperación Científica Internacional (PCCI) de CONICYT/BMBF 2001: Project #2001-163 (2002), *Espectroscopía micro-Raman de dominios ferroeléctricos en grabación tipo FRAM*. Director.
6. MECESUP 2000: Project #PUC0006 (2001–2003), *Fortalecimiento del Programa de Doctorado en el area de Física Experimental*. Participating scientist,  $\approx$  700.000 USD.
5. Bilateral scientific and technological cooperation of the Ministry of the Flemish Community (2000–2003), *Scanning Probe Microscopy applied to ferro-electricity and ferromagnetism*. Director of the chilean contribution,  $\approx$  70.000 USD.
4. FONDECYT regular 2000: Project #1000531 (2000–2003), *Studying ferroelectric domain structure by atomic force microscopy*. Director,  $\approx$  110.000 USD.
3. FONDECYT doctorado 2000: Project #2000040 (2000–2002), *Detección y espectrometría de moléculas individuales*. Tutor of the Ph.D. student F. Vargas.
2. FONDEF 1998: Project #D97F1001 (1998–1999), *Centro avanzado de microscopía para la caracterización de materiales de interés industrial usando radiación LASER*. Subdirector,  $\approx$  180.000 USD.
1. FONDECYT regular 1997: Project #1971191 (1997–2000), *Near-field optical study of individual dye molecules*. Director,  $\approx$  150.000 USD.

## Publications

44. G. Tarrach, F. Vargas, O. Hollricher, O. Marti, and G. de Schaetzen. *Dynamics of the fluorescence emission from single Rhodamine 6G molecules*. Acta Microscopica **12** (Supplement A, April), 35 (2003).
43. P. Lagos L., R. Hermans Z., N. Velasco, G. Tarrach, F. Schlaphof, Ch. Loppacher, and L. M. Eng. *Identification of ferroelectric domain structures in BaTiO<sub>3</sub> for Raman spectroscopy*. Surf. Sci. **532–535**, 493 (2003).
42. A. L. Cabrera, G. Tarrach, P. Lagos, and G. B. Cabrera. *Influence of crystallographic phase transitions in small ferroelectric particles on carbon dioxide adsorption*. Ferroelectrics **281**, 53 (2002).
41. F. Vargas, O. Hollricher, O. Marti, G. de Schaetzen, and G. Tarrach. *Influence of protective layers on the blinking of fluorescent single molecules observed by confocal microscopy and scanning near field optical microscopy*. J. Chem. Phys. **117** (2), 866 (2002).
40. A. Drechsler, M. A. Lieb, C. Debus, A. J. Meixner, and G. Tarrach. *Confocal microscopy with a high numerical aperture parabolic mirror*. Optics Express **9** (12), 637 (2001).
39. G. Tarrach, P. Lagos L., R. Hermans Z., F. Schlaphof, Ch. Loppacher, and L. M. Eng. *Nanometer spot allocation for Raman spectroscopy on ferroelectrics by polarization and piezoresponse force microscopy*. Appl. Phys. Lett. **79** (19), 3152 (2001).
38. G. Tarrach, P. Lagos, and R. Hermans. *Barium titanate studied by polarization microscopy, micro-Raman spectroscopy and AFM*. Acta Microscopica **10** (Supplement 1, April), 185 (2001).
37. F. Vargas, O. Hollricher, O. Marti, and G. Tarrach. *Comparison of single-molecule fluorescence by confocal microscopy and SNOM*. Acta Microscopica **10** (Supplement 1, April), 60 (2001).
36. G. Tarrach, M. A. Bopp, and A. J. Meixner. *Single Molecule Fluorescence Imaging by SNOM Related to other Scanning Probe Methods*. Extended abstract for Japanese Near-Field Optics Meeting in Tokyo, Japan, January 1998.
35. G. Tarrach, M. A. Bopp, and A. J. Meixner. *Monitoring Molecular Diffusion by SNOM in order to Determine the Structural Inhomogeneity of the Host Matrix*. Extended abstract for Japanese Near-Field Optics Meeting in Fukuoka, Japan, January 1998.
34. G. Tarrach, M. A. Bopp, M. A. Lieb, and A. J. Meixner. *Optische Nahfeldmikroskopie mit Farbstoffen*. Invited article. Spektrum der Wissenschaft **11** (November), 27 (1997).
33. M. A. Bopp, G. Tarrach, M. A. Lieb, and A. J. Meixner. *Super-Resolution Fluorescence Imaging of Single Dye Molecules in Thin Polymer Films*. J. Vac. Sci. Technol. **A15** (3), 1423 (1997).
32. M. A. Bopp, A. J. Meixner, G. Tarrach, I. Zschokke-Gränacher, and L. Novotny. *Direct Imaging Single Molecule Diffusion in a Solid Polymer Host*. Chem. Phys. Lett. **263** (6), 721 (1996).
31. M. Stähelin, M. A. Bopp, G. Tarrach, A. J. Meixner, and I. Zschokke-Gränacher. *Temperature Profile of Fiber Tips used in Scanning Near-Field Optical Microscopy*. Appl. Phys. Lett. **68** (19), 2603 (1996).
30. A. J. Meixner, D. Zeisel, M. A. Bopp, and G. Tarrach. *Super-Resolution Imaging and Detection of Fluorescence from Single Molecules by Scanning Near-Field Optical Microscopy*. Optical Engineering **34** (8), 2324 (1995).

29. G. Tarrach, M. A. Bopp, D. Zeisel, and A. J. Meixner. *Design and Construction of a Versatile Scanning Near-Field Optical Microscope for Fluorescence Imaging of Single Molecules*. Rev. Sci. Instrum. **66** (6), 3569 (1995).
28. A. J. Meixner, M. A. Bopp, D. H. Zeisel, and G. Tarrach. *Super-Resolution Fluorescence Imaging of Single Molecules Embedded in Thin Solid Films*. EOS Topical Meetings Digest Series **8**, 131 (1995).
27. M. A. Bopp, G. Tarrach, A. J. Meixner, and I. Zschokke-Gränacher. *Abbildung einer stehenden evaneszenten Welle mit optischer Nahfeld-Mikroskopie*. Helvetica Physica Acta **67** (2), 223 (1994).
26. A. J. Meixner, M. A. Bopp, and G. Tarrach. *Scanning Near-Field Optical Microscopy and Surface Spectroscopy with Nanometer Spatial Resolution*. EOS Topical Meetings Digest Series **4**, 30 (1994).
25. A. J. Meixner, M. A. Bopp, and G. Tarrach. *Direct Measurement of Standing Evanescent Wave with a Photon Scanning Tunneling Microscope*. Applied Optics **33** (34), 7995 (1994).
24. D. Bürgler, G. Tarrach, T. Schaub, R. Wiesendanger and H.-J. Güntherodt. *Local Structure and Dynamics of a Segregated  $c(2 \times 2)$  Sulfur Layer on Pd(001) Studied by Scanning Tunneling Microscopy*. Phys. Rev. **B47** (15), 9963 (1993).
23. G. Tarrach, D. Bürgler, T. Schaub, R. Wiesendanger and H.-J. Güntherodt. *Atomic Structure of the  $Fe_3O_4(001)$  Surface in Different Preparation Stages Studied by Scanning Tunneling Microscopy*. Surf. Sci. **285**, 1 (1993).
22. G. Tarrach. *Strukturanalyse mit Rastertunnelmikroskopie an Halbleiter- und Eisenoxid-Oberflächen im Ultrahochvakuum*. Dissertation, Institut für Physik, Universität Basel (1993).
21. H. Haefke, D. Bürgler, G. Gerth, L. Howald, E. Meyer, U. D. Schwarz, R. Steiger, G. Tarrach and R. Wiesendanger. *Micro- and Nanostructures on Silver Halide Surfaces: I. Preparation and Characterization of AgBr Samples*. Helv. Phys. Acta **65**, 872 (1992).
20. R. Wiesendanger, I. V. Shvets, D. Bürgler, G. Tarrach, H.-J. Güntherodt and J. M. D. Coey. *Recent Advances in Spin-Polarized Scanning Tunneling Microscopy*. Ultramicroscopy **42-44**, 338 (1992).
19. R. Wiesendanger, D. Bürgler, G. Tarrach, and H.-J. Güntherodt, I. V. Shvets and J. M. D. Coey. *Scanning Tunneling Microscopy Study of the Degree of Dimer Asymmetry on the  $Si(001)-(2 \times 1)$  Surface*. Surface Science **274**, 93 (1992).
18. R. Wiesendanger, I. V. Shvets, D. Bürgler, G. Tarrach, H.-J. Güntherodt and J. M. D. Coey. *Evidence for Selective Imaging of Different Magnetic Ions on the Atomic Scale by Using a Scanning Tunneling Microscope with a Ferromagnetic Probe Tip*. Europhys. Lett. **19** (2), 141 (1992).
17. R. Wiesendanger, D. Bürgler, G. Tarrach, I. V. Shvets and H.-J. Güntherodt. *Spin-Polarized Scanning Tunneling Microscopy (SPSTM)*. Mat. Res. Soc. Symp. Proc. **231**, 37 (1992).
16. R. Wiesendanger, I. V. Shvets, D. Bürgler, G. Tarrach, H.-J. Güntherodt, J. M. D. Coey and S. Gräser. *A Topographic and Magnetic-Sensitive Scanning Tunneling Microscope Study of Magnetite*. Science **255**, 583 (1992).
15. R. Wiesendanger, I. V. Shvets, D. Bürgler, G. Tarrach, H.-J. Güntherodt and J. M. D. Coey. *Magnetic Imaging at the Atomic Level*. Z. Phys. **B86**, 1 (1992).

14. I. V. Shvets, R. Wiesendanger, D. Bürgler, G. Tarrach, H.-J. Güntherodt and J. M. D. Coey. *Progress towards Spin-Polarized Scanning Tunneling Microscopy*. J. Appl. Phys. **71** (11), 5489 (1992).
13. D. Bürgler and G. Tarrach. *Model Calculation for Spin-Polarized Tunneling*. Ultramicroscopy **42–44**, 194 (1992).
12. R. Wiesendanger, D. Bürgler, G. Tarrach, T. Schaub, U. Hartmann and H.-J. Güntherodt, I. V. Shvets and J. M. D. Coey. *Recent Advances in Scanning Tunneling Microscopy Involving Magnetic Probes and Samples*. Appl. Phys. **A53**, 349 (1991).
11. R. Wiesendanger, D. Bürgler, G. Tarrach, H.-J. Güntherodt and G. Güntherodt. *Tunneling of Spin-Polarized Electrons*. Proc. Scanned Probe Microscopies: STM and Beyond, Santa Barbara (1991).
10. R. Wiesendanger, D. Bürgler, G. Tarrach, H.-J. Güntherodt and G. Güntherodt. *Scanning Tunneling Microscopy with Spin-polarized Electrons*. Proc. Symp. Surf. Sci. **3S'91**, 77 (1991).
9. R. Wiesendanger, D. Bürgler, G. Tarrach, A. Wadas, D. Brodbeck, H.-J. Güntherodt, G. Güntherodt, R. J. Gambino and R. Ruf. *Vacuum Tunneling of Spin-polarized Electrons Detected by Scanning Tunneling Microscopy*. J. Vac. Sci. Technol. **B9** (2), 519 (1991).
8. G. Tarrach, R. Wiesendanger, D. Bürgler, L. Scandella and H.-J. Güntherodt. *Laser and Thermal Annealed Si(111) and Si(001) Surfaces Studied by Scanning Tunneling Microscopy*. J. Vac. Sci. Technol. **B9** (2), 677 (1991).
7. R. Wiesendanger, D. Bürgler, G. Tarrach, D. Anselmetti, H. R. Hidber and H.-J. Güntherodt. *An Ultrahigh Vacuum Scanning Tunneling Microscope for the Investigation of Clean Surfaces*. J. Vac. Sci. Technol. **A8** (1), 339 (1990).
6. R. Wiesendanger, G. Tarrach, D. Bürgler, L. Scandella and H.-J. Güntherodt. *From Point Defects to Amorphous Structures: Atomic Resolution Studies of Semiconductor Surfaces by Scanning Tunneling Microscopy*. Mat. Res. Soc. Symp. Proc. **183**, 237 (1990).
5. R. Wiesendanger, D. Bürgler, G. Tarrach and H.-J. Güntherodt. *Local Structure of the Si(100) Surface Studied by Scanning Tunneling Microscopy*. Surface Science **232**, 1 (1990).
4. R. Wiesendanger, G. Tarrach, D. Bürgler and H.-J. Güntherodt. *Scanning Tunneling Microscopy Study of Si(111)7×7 in the Presence of Multiple-Step Edges*. Europhys. Lett. **12** (1), 57 (1990).
3. R. Wiesendanger, G. Tarrach, L. Scandella and H.-J. Güntherodt. *Scanning Tunneling Microscopy on Laser- and Thermal-Annealed Si(111): Transitions from 7×7 Reconstructed to Disordered Surface Structures*. Ultramicroscopy **32**, 291 (1990).
2. R. Wiesendanger, G. Tarrach, D. Bürgler, Th. Jung, L. Eng and H.-J. Güntherodt. *An Ultrahigh Vacuum Scanning Tunneling Microscope for Surface Science Studies*. Vacuum **41** (1–3), 386 (1990).
1. D. A. Tröster, R. Adler, J. R. Fry, T. Gerialis, C. Jacobs, E. Machado, P. Pavlopoulos, C. Rheme, D. Sacker, G. Tarrach, P. Tsilimigras and E. J. Watson. *Trigger Using Track Search and Kinematical Analysis for Rare Decay Channels at High Rates*. Nuclear Instruments and Methods in Physics Research **A279**, 285 (1989).

## Presentations

56. G. Tarrach. *SwissProbe hr-MFM: An analytical tool to study nano-scale magnetism*. Talk at Nanofair — International fair and conference for innovations and market entries with nano and microtechnologies, 14.–16. September 2004, St. Gallen, Switzerland.
55. G. Tarrach, F. Vargas, O. Hollricher, O. Marti, and G. de Schaetzen. *High-resolution imaging of single fluorescent molecules using cantilever-SNOM sensors*. Talk at the 12th International Conference on Scanning Tunneling Microscopy/Spectroscopy and Related Techniques, 21.–25. July 2003, Eindhoven, Netherlands.
54. G. Tarrach, F. Vargas, O. Hollricher, O. Marti, and G. de Schaetzen. *Dynamics of the fluorescence emission from single Rhodamine 6G molecules*. Invited talk at the 2nd Latin American Symposium on Scanning Probe Microscopy, 7.–9. April 2003, Búzios, Brazil.
53. G. Tarrach. *Caracterización de dominios ferroeléctricos y la dinámica de la fluorescencia de moléculas individuales*. Invited talk at the workshop "Sistemas de baja dimensionalidad", 9.–10. January 2003, Valparaíso, Chile.
52. G. Tarrach, F. Vargas, O. Hollricher, O. Marti, and G. de Schaetzen. *Dinámica de la fluorescencia de moléculas individuales observada mediante microscopía confocal y de campo cercano*. Talk at XIII Simposio Chileno de Física, 13.–15. November 2002, Concepción, Chile.
51. R. Hermans Z., P. Lagos L., N. Velasco, G. Tarrach, F. Schlaphof, Ch. Loppacher, and L. M. Eng. *Identificación de dominios ferroeléctricos en BaTiO<sub>3</sub> para micro-espectroscopía Raman*. Talk at XIII Simposio Chileno de Física, 13.–15. November 2002, Concepción, Chile.
50. A. L. Cabrera, H. Ulloa, J. Espinosa-Gangas, G. Tarrach, and I. K. Schuller. *Properties of Niobium Surfaces*. Talk at XIII Simposio Chileno de Física, 13.–15. November 2002, Concepción, Chile.
49. F. Vargas, G. Tarrach, O. Hollricher, and O. Marti. *Single-molecule detection of Rhodamine-6G using cantilever-SNOM sensors*. Poster at NFO 7 conference, 11.–15. August 2002, Rochester NY, USA.
48. G. Tarrach. *About ferroelectric domain characterization and the dynamics of single molecule fluorescence*. Seminar talk at the Laboratory for Solid State Physics and Magnetism of Katholieke Universiteit Leuven, 3. July 2002, Leuven, Belgium.
47. G. Tarrach, R. Hermans Z., P. Lagos L., N. Velasco, F. Schlaphof, Ch. Loppacher, and L. M. Eng. *Identification of ferroelectric domain structure in BaTiO<sub>3</sub> for micro-Raman spectroscopy*. Talk at NANO-7/ECOSS-21 conference, 24.–28. June 2002, Malmö, Sweden.
46. G. Tarrach. *Raman spectroscopy of ferroelectric single domains in BaTiO<sub>3</sub>*. Talk at the 4th Flemish-Chilean Symposium on Interfaces and Two-Dimensional Systems, 28.–30. May 2002, Santiago, Chile.
45. H. Ulloa, G. Tarrach, A. L. Cabrera, and I. K. Schuller. *Surface roughness of thin Niobium sputtered films*. APS March Meeting (2002).
44. G. Tarrach. *Estudio microscópico de dominios ferroeléctricos*. Invited colloquium talk at the Universidad Técnica Federico Santa María, 20. December 2001, Valparaíso, Chile.
43. G. Tarrach. *Ferroelectric domains in BaTiO<sub>3</sub> studied by AFM and micro-Raman spectroscopy*. Seminar talk at the Laboratory for Solid State Physics and Magnetism of Katholieke Universiteit Leuven, 24. August 2001, Leuven, Belgium.

42. G. Tarrach, P. Lagos L., R. Hermans Z., Ch. Loppacher, F. Schlaphof, and L. M. Eng. *Three-dimensional determination of ferroelectric domain structure by polarization light microscopy and piezoresponse force microscopy*. Poster at the 11th International Conference on Scanning Tunneling Microscopy/Spectroscopy and Related Techniques, 15.–20. July 2001, Vancouver, Canada.
41. G. Tarrach. *SPM in combination with classical optics*. Invited talk at the 1st Latin American Symposium on Scanning Probe Microscopy, 2.–4. April 2001, São Pedro, Brazil.
40. G. Tarrach, P. Lagos, and R. Hermans. *Barium titanate studied by polarization microscopy, micro-Raman spectroscopy and AFM*. Poster at the 1st Latin American Symposium on Scanning Probe Microscopy, 2.–4. April 2001, São Pedro, Brazil.
39. F. Vargas, O. Hollricher, O. Marti, and G. Tarrach. *Comparison of single-molecule fluorescence by confocal microscopy and SNOM*. Poster at the 1st Latin American Symposium on Scanning Probe Microscopy, 2.–4. April 2001, São Pedro, Brazil.
38. M. A. Lieb, A. Drechsler, C. Debus, R. Gallacchi, A. J. Meixner, and G. Tarrach. *Application of a parabolic mirror with high numerical aperture for imaging and spectroscopy of single molecules at low temperature*. Poster at the 2nd International Symposium on Physics, Chemistry and Biology with Single Molecules, 5.–7. March 2001, Kloster Banz, Germany.
37. G. Tarrach. *Ferroelectric domains studied by AFM, Raman spectroscopy, and polarization microscopy*. Talk at the 3rd Flemish-Chilean Symposium on Interfaces and Two-Dimensional Systems, Faculty of Physics of Pontificia Universidad Católica de Chile, 27.–28. November 2000, Santiago, Chile.
36. J. Espinosa-Gangas, G. B. Cabrera, R. A. Zárate, F. Vargas, G. Tarrach, and A. L. Cabrera. *Raman characterization of ferroelectric materials*. Bulletin APS **44** (1), 1937 (1999).
35. G. Tarrach. *Con tacto y linterna: Microscopía a escala molecular con AFM y SNOM*. Invited colloquium talk at the Universidad Técnica Federico Santa María, 2. December 1999, Valparaiso, Chile.
34. G. Tarrach. *Visualizar, modificar y experimentar a escala molecular*. Students colloquium at the Pontificia Universidad Católica de Chile, 24. November 1999, Santiago, Chile.
33. G. Tarrach. *A potpourri of experiences in Scanning Probe Microscopy*. Invited talk at the Laboratory for Solid State Physics and Magnetism of Katholieke Universiteit Leuven, 7. September 1999, Leuven, Belgium.
32. G. Tarrach. *Probing the southern hemisphere*. Invited talk at the Institute of Physics of Universität Basel, 27. August 1999, Basel, Switzerland.
31. G. Tarrach. *Studying the properties of single molecules in thin films and at surfaces by means of scanning probe microscopy*. Invited talk at the 1st Flemish-Chilean Symposium on Interfaces and Two-Dimensional Systems, Faculty of Physics of Pontificia Universidad Católica de Chile, 14.–16. April 1999, Santiago, Chile.
30. G. Tarrach. *Anwendung der Kraftmikroskopie im Bereich der Lebensmittelverarbeitung*. Invited seminar talk at the Department of Experimental Physics of Universität Ulm, 29. January 1999, Ulm, Germany.
29. G. Tarrach. *Imaging the Diffusion of Fluorescent Molecules by Means of Near-Field Optics (in Spanish)*. Invited talk at the VIII Encuentro de Física Regional-Norte and IV Reunión Internacional Andina de Física, 8.–10. October 1998, Arica, Chile.

28. G. Tarrach. *Scanning Probe Microscopy: Introducción y Ejemplos de Aplicación*. Invited talk at Colloquium on "Caracterización de Materiales Mediante Técnicas Avanzadas Disponibles en Chile", Pontificia Universidad Católica de Chile, 29. September 1998, Santiago, Chile.
27. G. Tarrach. *Scanning Probe Microscopy, una Técnica de Alta Diversidad*. Invited seminar talk at the Physics Department of Universidad de Chile, 10. July 1998, Santiago, Chile.
26. G. Tarrach. *Single Molecule Fluorescence Imaging by SNOM Related to other Scanning Probe Methods*. Invited talk at the 7th ATI International Forum of Nanoscience and Nanotechnology, 27. January 1998, Tokyo, Japan.
25. G. Tarrach. *Monitoring Molecular Diffusion by SNOM in order to Determine the Structural Inhomogeneity of the Host Matrix*. Invited talk at the annual meeting of the Japanese priority area on Near-field and Nano-optics, 23. January 1998, Fukuoka, Japan.
24. G. Tarrach. *Diffusion of fluorescent probe molecules in a solid polymer host observed by near-field optical microscopy*. Invited seminar talk at the Department of Applied Physics of Osaka University, 21. January 1998, Osaka, Japan.
23. G. Tarrach. *Near-field optics and its application to the study of individual fluorescent molecules*. Invited talk at "VII Simposio Nacional de Física Experimental y Aplicada" FEXAP'98, 5.-9. January 1998, Santiago, Chile.
22. E. H. Morales, A. L. Cabrera, G. Tarrach, and R. Lüthi. *Avances y resultados preliminares con microscopio efecto túnel*. Poster at "VII Simposio Nacional de Física Experimental y Aplicada" FEXAP'98, 5.-9. January 1998, Santiago, Chile.
21. G. Tarrach, M. A. Lieb, and A. J. Meixner. *Scanning near-field optical microscope (SNOM) for single-molecule fluorescence imaging at cryogenic temperatures*. Poster at STM'97 conference, 20.-25. July 1997, Hamburg, Germany.
20. M. A. Lieb, M. A. Bopp, R. Gallacchi, G. Tarrach, and A. J. Meixner. *Observing single dye molecules in different environments with scanning near-field optical microscopy (SNOM)*. Poster at STM'97 conference, 20.-25. July 1997, Hamburg, Germany.
19. G. Tarrach. *Near-field optical study of the dynamics of single fluorescent molecules and their local environment*. Talk at NFO-4 conference, 9.-13. February 1997, Jerusalem, Israel.
18. G. Tarrach. *Observing single fluorescent molecules and other local effects by means of scanning probe techniques*. Invited talk at the Faculty of Physics, Pontificia Universidad Católica de Chile, 10. January 1997, Santiago, Chile.
17. G. Tarrach. *Scanning Near-field Optical Microscope for Single Molecule Imaging at Cryogenic Temperatures*. Talk at AVS 43rd National Symposium, 14.-18. October 1996, Philadelphia (PA), USA.
16. G. Tarrach. *Near-field optical microscopy: From cells to single molecules*. Invited talk at the minisymposium "Microscopies à force atomique et à champ proche optique et leurs applications dans la recherche biologique et biomédicale", Centre de Microscopie Electronique, Université de Lausanne, 18. June 1996, Lausanne, Switzerland.
15. G. Tarrach. *Molecular spies illuminate the nano-world: Fluorescence microscopy of single dye molecules beyond the diffraction limit*. Invited talk at the Faculty of Physics, Pontificia Universidad Católica de Chile, 28. March 1996, Santiago, Chile.

14. G. Tarrach. *Nahfeldoptische Fluoreszenzmikroskopie einzelner Farbstoffmoleküle im Polymer*. Talk at the Diskussionstagung "Raster-Sonden-Mikroskopien und organische Materialien IV", 11.–13. October 1995, München, Germany.
13. G. Tarrach. *Scanning near-field optical fluorescence imaging of individual dye molecules in a solid polymer matrix*. Talk at STM'95 conference, 23.–28. July 1995, Snowmass Village (CO), USA.
12. G. Tarrach, M. A. Bopp, D. Zeisel, and A. J. Meixner. *High resolution laser spectroscopy with sub-wavelength spatial resolution*. Poster at the annual information meeting of the Swiss Optics Priority Program, 15. November 1994, Bern, Switzerland.
11. G. Tarrach. *Atomare Oberflächenstruktur von  $Fe_3O_4(001)$  in Abhängigkeit der Präparationsparameter*. Talk at the spring meeting of the German Physical Society (DPG), 21.–25. March 1994, Münster, Germany.
10. T. Schaub, D. Bürgler, G. Tarrach, and H.-J. Güntherodt. *Sub-Nanometer-Scale Surface Structure of Amorphous Metals Observed by STM*. Poster at STM'93 conference, 9.–13. August 1993, Beijing, China.
9. G. Tarrach. *Strukturanalyse mit Rastertunnelmikroskopie an Halbleiter- und Eisenoxid-Oberflächen im Ultrahochvakuum*. Talk in the condensed matter seminar at the Institute of Physics, University of Basel, 8. February 1993, Basel, Switzerland.
8. D. Bürgler, G. Tarrach, T. Schaub, and H.-J. Güntherodt. *Defects and Antiphase Domain Boundaries of a Sulfur Layer on Pd(001): Atomic Structure and Dynamics*. Poster at Gordon Research Conference "Frontiers of STM", 15.–19. March 1993, Venture (CA), USA.
7. G. Tarrach. *Atomare Struktur der (001)-Oberfläche von Magnetit in verschiedenen Präparationsstufen*. Talk at the autumn meeting of the Swiss Physical Society (SPG), 1.–2. October 1992, Basel, Switzerland.
6. G. Tarrach, D. Bürgler, R. Wiesendanger, and I. V. Shvets. *Atomic Resolution by UHV-STM with in-situ Prepared Fe-Tips*. Poster at STM'91 conference, 12.–16. August 1991, Interlaken, Switzerland.
5. D. Bürgler, and G. Tarrach. *A Model Calculation for Spin-Polarized Tunneling*. Poster at STM'91 conference, 12.–16. August 1991, Interlaken, Switzerland.
4. I. V. Shvets, J. M. D. Coey, R. Wiesendanger, D. Bürgler, G. Tarrach, and H.-J. Güntherodt. *Progress in the STM Experiments with Magnetic Tips and Samples*. Poster at STM'91 conference, 12.–16. August 1991, Interlaken, Switzerland.
3. D. Bürgler, G. Tarrach, and R. Wiesendanger. *Vacuum Tunneling of Spin-Polarized Electrons Observed by Scanning Tunneling Microscopy*. Poster at the International School for Material Science and Technology, 21<sup>st</sup> Course "Surface and Thin-Film Magnetism", 1.–13. July 1991, Erice (Sicilia), Italy.
2. G. Tarrach, R. Wiesendanger, D. Bürgler, L. Scandella, and H.-J. Güntherodt. *Laser and Thermal Annealed Si(111) and Si(001) Surfaces Studied by Scanning Tunneling Microscopy*. Poster at STM'90/NANO I conference, 23.–27. July 1990, Baltimore, Maryland, USA.
1. D. Bürgler, H. Heinzelmann, G. Tarrach, E. Meyer, and H.-J. Güntherodt. *Atomic Force Microscope for the Ultra-High Vacuum*. Poster at STM'90/NANO I conference, 23.–27. July 1990, Baltimore, Maryland, USA.

## Public Relations

12. *Entrevista sobre Nanotecnología*. Televisión del Canal 13 Cable, Santiago de Chile (2002).
11. *Nuevo microscopio cambia la investigación*. El Mercurio, 1 de Julio, p. A7 (2002).
10. *La Universidad Católica adquiere un microscopio electrónico único en Chile*. Visión Universitaria, Junio, p. 5 (2002).
9. *Reportage del Laboratorio de Nanotecnología*. Televisión del Canal 7, Santiago de Chile (1998).
8. G. Tarrach. *Bericht aus Santiago de Chile*. Bericht in "SPG Mitteilungen" der Schweizerischen Physikalischen Gesellschaft **3**, 14 (1998).
7. G. Tarrach. *Andere Wechselwirkungen zwischen Spitze und Probe und Zukunftsaussichten der SPM-Technik*. Vortrag an der "Volkhochschule beider Basel" als Teil des Kurses *Die Welt der Atome — Neue Wege der Mikroskopie*, 21. & 28. Januar 1997.
6. M. Schulenburg. *In Zukunft... Wissenschaftler lassen Teilchen tanzen — Neues aus der Nanowelt*. Fernsehen des Westdeutschen Rundfunks Köln, 29. August 1995.
5. G. Tarrach. *Laserspektroskopie mit Nahfeldoptik: Ein Auge für die Welt der Nanometer*. Bericht in Uni Nova, Mitteilungen aus der Universität Basel **72**, 45 (1994).
4. E. Heinzelmann. *Das Institut für Physik der UNI Basel: Nanotechnik für Produktinnovation*. Bericht in Technische Rundschau Wissen **86** (Juli), 14 (1994).
3. J.-J. Daetwyler. *Le microscope optique pulvérise la frontière du micron*. Essay en 24-Heures, 1e juin 1994.
2. J.-J. Daetwyler. *Wie man ein Naturgesetz umgehen kann: Neuartige Lichtmikroskope können sogar Moleküle scharf abbilden*. Bericht in der Wissenschaftsbeilage des Tages-Anzeiger, 16. März 1994.
1. *Auf Sightseeing-Tour durch Atomlandschaften*. Bericht in Horizonte, Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung **8** (Juni), 12 (1990).