

BIOGRAPHICAL SKETCH – CURRICULUM VITAE

ULRICH GEORG VOLKMANN

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EDUCATION: Physics studies at Justus Liebig-Universität in Giessen, Germany 9/78-9/81; Institut für Physik der Johannes Gutenberg-Universität in Mainz, Germany, Diplom-Physiker (Dipl.-Phys.), 1985; Institut für Physik and Material Research Center of the Johannes Gutenberg-University Mainz, Germany, Ph.D. (Dr. rer. nat.) in Physics, 1991.

Ph.D. THESIS ADVISOR: Prof. Dr. Klaus Knorr.

COMPLEMENTARY SPECIALTY (in Germany required to obtain the Diploma degree): **Nuclear Chemistry / Radio Chemistry.** Adviser: Prof. Dr. Günther Herrmann, during my study Director of the Research Reactor at the University Mainz and Director of the GSI-Darmstadt (Heavy Ion Research Center, Darmstadt). Specialty includes two labs / practical work at the Research Reactor at the University Mainz.

EMPLOYMENT HISTORY: Head of SurfLab at Physics Institute, Pontificia Universidad Católica de Chile, Santiago, Chile and Centro de Investigación en Nanotecnología y Materiales Avanzados (CIEN-UC), Pontificia Universidad Católica de Chile: Profesor Titular, 2/2006 to present; Associate Professor / Profesor Adjunto, 2/1993 to 1/2006. Physics Department, Universidad de Chile, Santiago, Chile: Teacher and Research Scientist, 3/1992-1/93. Sonder-Forschungs-Bereich SFB 62, University Mainz: Scientific Assistant, 3/1991-2/1992.

RESEARCH INTERESTS at SURFLAB of Physics Institute UC:

Actual focus:

We design and adapt experimental equipment for our needs in the study of Surfaces and Interfaces.

Beside the study of dip-coated, spin-coated and sputtered thin films, monolayers, bilayers, and multilayers, we focus on growth and interaction of phospholipid bilayers on diverse substrates. In the latter context we developed a solvent free, dry process for vacuum deposition of stable lipid bi-layers. We focus on processes to obtain homogeneous layers.

Protein insertion by conventional wet processes and the development of dry, long term storable and stable systems as platforms for biosensors is one of our objectives.

Wider context:

Organic and inorganic thin films / 2D materials; Bio-Nanostructures; Bio-silicon interfaces; Self-hydrated artificial membranes; Self assembling multilayers of charged polymers (polyions, polyelectrolytes) and cellulose; Selective adsorption, roughness, structure and dynamic of adsorbed long chain molecules (n-alkanes);

Phospholipids, Chitosan; Si-, SiO₂-, porous Si, metal substrates; Proteins; Dry and wet artificial membrane formation and characterization (dipcoating, Langmuir, Spin-coating, from the gasphase / PVD / solvent free processes), Electrochemical and physical changes for applications in Biosensors; Watersplitting, photo-catalytic green hydrogen production; Atomic Force Microscopy (AFM); Interaction of photons with thin films; Imaging Ellipsometry (IE); Very High Resolution Ellipsometry (VHRE); thin magnetic films, magnetic superlattices; AC-magneto optical Kerr effect (MOKE). Structural phase transitions in bulk material; critical phenomena: structural relaxation at the glass transition of amorphous solids; elastic properties of amorphous and crystalline materials; wetting of surfaces by monoatomic and molecular films, wetting transitions in adsorbed films, surface freezing, adhesion, anchoring, interfacial ordering, roughness of substrates and films, thermodynamic description of the epitaxial growth of surface films: structural phase transitions in thin films; growth kinetics of thin films, experimental realization of a lattice gas system; optical propagation in multibarrier systems; quadrupolar dynamics in plastic crystals and orientational glasses, thin magnetic films, optical activity of hydrogen charged Pd films.

EXPERIMENTAL EXPERTISE: Very high-resolution ellipsometry VHRE; Imaging ellipsometry IE; AC-Kerr (AC-MOKE) and DC-Kerr (DC-MOKE); Optical and UV spectroscopy; Scanning Probe Microscopy (AFM, STM, SEM); Ultra-high vacuum techniques UHV; Cryogenic techniques (liquid helium, liquid nitrogen, closed-cycle refrigerators); Design of superisolated liquid helium cryostats; computer-aided measurement and control; thermally activated laser desorption; mass spectrometry; very high and ultra low temperature measurement and control; pressure measurement; gas purification; physical vapor deposition PVD; flash evaporation; X-ray powder diffraction; transmission electron microscopy TEM, nuclear chemistry and physics (research reactor Mainz and MURR/Columbia); quasielastic neutron scattering (QENS at Intense Pulsed Neutron Source IPNS at ANL, USA); Synchrotron X-ray diffraction on thin films (MATRIX at the National Synchrotron Light Source NSLS at Brookhaven National Laboratory in New York); Elastic constant measurement: low-frequency dynamic torsion LFDT; Dielectric constant measurement; Magnetization in LTC Superconductors; Surface cleaning with Nd:YAG and Ruby lasers.

TEACHING EXPERIENCE: University Mainz-undergraduate and graduate physics course and lab instructor, supervised graduated seminar, instruction of physicists during their diploma thesis. University of Chile and the Catholic University of Chile-taught under graduate / graduate physics to students in the Physics & Astronomy, Engineering, Chemistry, Biology, Agriculture and Construction Faculties. Typical teaching charge: 1 to 2 massive service courses and 1 to 2 laboratories per semester (average teaching load: 2,8 courses per semester).

PUBLICATIONS IN INTERNATIONAL JOURNALS:

1. **“Intra-cavity laser-assisted solar-energy conversion”**, I. Jiménez, S. Wallentowitz, B. Seifert, U. G. Volkmann, D. E. Diaz-Droguett, A. L. Cabrera, and L. Gence. *Journal of the Optical Society of America B* 40, 1922-1930 (2023). DOI: 10.1364/JOSAB.493727
2. **“How water wets and self-hydrophilizes nanopatterns of physisorbed hydrocarbons”**, Diego Diaz, Ole Nickel, Nicolas Moraga, Rodrigo E. Catalan, Maria Jose Retamal, Hugo Zelada, Marcelo Cisternas, Robert Meissner, Patrick Huber, Tomas P. Corrales, Ulrich G. Volkmann. *Journal of Colloid and Interface Science* 606, 57-66 (2022), DOI: 10.1016/j.jcis.2021.07.121 ; ARXIV: 2107.12129 .

3. **“Structural, optoelectronic and photo-thermoelectric properties of crystalline alloy $\text{CuAl}_x\text{Fe}_{1-x}\text{O}_2$ delafossite oxide materials”**, R.A. Wheatley, M. Roble, L. Gence, C. Acuña, R. Rojas-Aedo, D. Hidalgo-Rojas, D.E. Guzman-De La Cerda, S. Vojkovic, B. Seifert, S. Wallentowitz, U.G. Volkmann and D.E. Diaz-Droguett. *Journal of Alloys and Compounds* 857, 157613 (2021).
DOI: 10.1016/j.jallcom.2020.157613
4. **“Dry Two-Step Self-Assembly of Stable Supported Lipid Bilayers on Silicon Substrates”**, M.A. Cisternas, F. Palacios-Coddou, S. Molina, M.J. Retamal, N. Gomez-Vierling, N. Moraga, H. Zelada, M.A. Soto-Arriaza, T.P. Corrales, U.G. Volkmann. *International Journal of Molecular Sciences* 21, 6819 (15pp) (2020).
DOI: 10.3390/ijms21186819
5. **“Study of nitrogen implantation in Ti surface using plasma immersion ion implantation & deposition technique as biocompatible substrate for artificial membranes”**, M. Cisternas, H. Bhuyan, M.J. Retamal, N. Casanova-Morales, M. Favre, U.G. Volkmann, P. Saiki, D.E. Diaz-Droguett, S. Mändl, D. Manova, N. Moraga, A. Chandía-Cristi, A. Alvarez, F. Guzman. *Materials Science and Engineering: C* 130, 111002-111010 (2020).
DOI: 10.1016/j.msec.2020.111002
6. **“Wrinkled titanium nitride nanocomposite for robust bendable electrodes”**, L. Gence, M. Escalona, C. Castillo, F. Quero, P. Saikia, R. Wheatley, D. E. Diaz-Droguett, M. J. Retamal, U. G. Volkmann and H. Bhuyan. *Nanotechnology* 30, 495705 (11pp) (2019).
DOI: 10.1088/1361-6528/ab416c.
7. **“Wetting properties of hydrothermally synthesized crystalline CuFeO_2 delafossite porous surfaces”**, R.A. Wheatley, M. Roble, S. Molina, D. Diaz, S.D. Rojas, B. Seifert, S. Wallentowitz, D.E. Diaz-Droguett and U.G. Volkmann. *Materials Letters* 245, 61-64 (2019).
DOI: 10.1016/j.matlet.2019.01.150
8. **“Accessing the structural and thermodynamic properties of ultra-thin layers of C32 adsorbed on a SiO_2 surface”**, Sebastian E. Gutierrez-Maldonado, Jose Antonio Garate, Maria Jose Retamal, Marcelo A. Cisternas, Ulrich G. Volkmann, Tomas Perez-Acle. *Chemical Physics Letters* 674, 64-70 (2017).
DOI: 10.1016/j.cplett.2017.01.065.
9. **“Unambiguous ultrashort pulse reconstruction from double spectrograms alone”**, Birger Seifert, Robert Alastair Wheatley, Ricardo Rojas-Aedo, Sascha Wallentowitz, Ulrich Volkmann, Karsten Sperlich and Heinrich Stolz, *J. Opt.* **18**, 105502 (2016).
DOI: 10.1088/2040-8978/18/10/105502.
10. **“Influence of TiO_2 nanostructures on anti-adhesion and photoinduced bactericidal properties of thin film composite membranes”**, A. García, Y. Quintero, N. Vicencio, B. Rodríguez, D. Ozturk, E. Mosquera, T. P. Corrales and U. G. Volkmann, *RSC Adv.* **6**, 82941-82948 (2016).
DOI: 10.1039/C6RA17999A.
11. **“Surface Morphology of Vapor-Deposited Chitosan: Evidence of Solid-State Dewetting during the Formation of Biopolymer Films”**, Maria Jose Retamal, Tomas P. Corrales, Marcelo A. Cisternas, Nicolas H. Moraga, Diego I. Diaz, Rodrigo E. Catalan, Birger Seifert, Patrick Huber, and Ulrich G. Volkmann. *Biomacromolecules*, 2016, 17 (3), pp 1142–1149. Publication Date (Web): January 26, 2016 (Article). DOI: 10.1021/acs.biomac.5b01750
12. **“Towards bio-silicon interfaces: Formation of an ultra-thin self-hydrated artificial membrane composed of dipalmitoylphosphatidylcholine (DPPC) and chitosan deposited in high vacuum from the gas-phase”**, María J. Retamal, Marcelo A. Cisternas, Sebastian E. Gutierrez-Maldonado, Tomas Perez-Acle, Birger Seifert, Mark Busch, Patrick Huber and Ulrich G. Volkmann, *J. Chem. Phys.* **141**, 104201 (2014); DOI: 10.1063/1.4894224
This publication was highlighted by the American Institute of Physics AIP-Publishers as **“First Synthetic Membranes Made without Solvents”**:
<http://www.aip.org/publishing/journal-highlights/artificial-membranes-silicon>

13. **"Spontaneous Formation of Nanopatterns in Velocity-Dependent Dip-Coated Organic Films: From Dragonflies to Stripes"**, Tomas P. Corrales, Mengjun Bai, Valeria del Campo, Pia Himm, Piero Ferrari, Armand Diama, Christian Wagner, Haskell Taub, Klaus Knorr, Moshe Deutsch, Maria Jose Retamal, Ulrich G. Volkmann, and Patrick Huber, *ACS Nano* **8** (2014), pp 9954–9963. DOI: 10.1021/nn5014534
14. **"Spectrographic phase-retrieval algorithm for femtosecond and attosecond pulses with frequency gaps"**, B. Seifert, S. Wallentowitz, U. Volkmann, A. Hause, K. Sperlich, H. Stolz, *Optics Communications* **329** (2014) 69-75; DOI:10.1016/j.optcom.2014.05.001.
15. **"Investigation of the ion beam emission from a pulsed power plasma device"**, A. Henríquez, H. Bhuyan, M. Favre, M. J. Retamal, U. Volkmann, E. Wyndham, H. Chuaqui, *Journal of Physics Conference Series* **511** (1), 012073 (2014). DOI: 10.1088/1742-6596/511/1/012073
16. **"Thermal behavior of 1,2-dipalmitoyl-sn-3-phosphoglycerocholine bi- and multi-layers, deposited with physical vapor deposition under ellipsometric growth control"**, Carmen González Henríquez, Ulrich G. Volkmann, María José Retamal, Mauricio Sarabia, Marcelo Cisternas, Karina Lopez. *The Journal of Chemical Physics* **136**, 134709-134714 (2012).
17. **"Inclusion effect of gold and copper particles in a poly(amide) matrix that contains a thiophene moiety and Si or Ge atoms in the main chain"**; C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Barriga González, U. G. Volkmann, A. L. Cabrera, E. Ramos-Moore, Maria Jose Retamal. *Journal of Material Chemistry* **22**, 6782-6791 (2012). (Impact factor: 5.1).
18. **"Poly(ester)s and Poly(amide)s with fluorene and diphenyl-silane units in the main chain. Effects of iodine doping on the structure and electrical conductivity"**; C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Barriga González, A. L. Cabrera, and U. G. Volkmann. *Journal of Applied Polymer Science* **125** (1), 477-487 (2012). DOI: 10.1002/app.35499 (Impact factor: 1.240)
19. **"Thiophene and Silarylene-Containing Poly(ester)s Resonance Effect on Conductivity after Polarization in an External Electric Field"**; C. M. González-Henríquez, L.H. Tagle, C. A. Terraza, A. Leiva, A. Barriga González, U. G. Volkmann, A. L. Cabrera, E. Ramos-Moore, M. Pavez-Moreno. *Polymer International* **61** (5), 810-817 (2012). DOI: 10.1002/pi.4147 (Impact factor: 2.056).
20. **"Synthesis of Oligomeric Silicon-containing Poly(imide-amide)s Derived from Trimellitic Anhydride and Amino-Acids. Vibration Spectral, Optical, Thermal and Morphological Characterization"**; L.H. Tagle, C.A. Terraza, P. Ortiz, M. Rodríguez, A. Tundidor-Camba, A. Leiva, C.M. González-Henríquez, A. Cabrera, U.G. Volkmann, E. Ramos-Moore. *Journal of Macromolecular Science: Pure Applied Chemistry* **49**, 562-570 (2012).
21. **"Structural symmetry breaking of silicon-containing poly(amide-imide) oligomers and their relation with electrical conductivity and Raman active vibrations"**; C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Barriga González, U. G. Volkmann, A. L. Cabrera, E. Ramos-Moore, M. Pavez-Moreno. *Polymer International* **61**, 197-204 (2011). (Impact factor: 2.056).
22. **"Molecular-dynamics simulation of lateral friction in contact-mode atomic force microscopy of alkane films: The role of molecular flexibility"**, P. Soza, F.Y. Hansen, H. Taub, M. Kiwi, E. Cisternas, U.G. Volkmann and V. del Campo. *EPL* **95**, 36001 (2011).
23. **"Transition from van der Waals to H Bond Dominated Interaction in *n*-Propanol Physisorbed on Graphite"**, Matthias Wolff, Frank Kruchten, Patrick Huber, Klaus Knorr, and Ulrich G. Volkmann. *Phys. Rev. Lett.* **106**, 156103 (2011).
24. **"Position resolution and efficiency measurements with large scale Thin Gap Chambers for the super LHC"**; Nir Amram, Gideon Bella, Yan Benhammou, Marco A. Diaz, Ehud Duchovni, Erez Etzion, Alon Hershenhorn, Amit Klier, Nachman Lupu, Giora Mikenberg, Dmitry Milstein, Yonathan Munwes, Osamu Sasaki, Meir Shoa, Vladimir Smakhtin, Ulrich Volkmann. *Nuclear Instruments and*

- Methods in Physics Research A **628**, 177–181 (2011).
25. **"Localized diffusive motion on two different time scales in solid alkane nanoparticles"**, S.-K. Wang, E. Mamontov, M. Bai, F. Y. Hansen, H. Taub, J. R. D. Copley, V. García Sakai, G. Gasparovic, T. Jenkins, M. Tyagi, K. W. Herwig, D. A. Neumann, W. Montfrooij and U. G. Volkmann. *EPL* **91**, 66007 (2010).
 26. **"Optical properties of Pd thin films exposed to hydrogen studied by transmittance and reflectance spectroscopy"**, J. I. Avila, R. J. Matelon, R. Trabol, M. Favre, D. Lederman, U. G. Volkmann and A. L. Cabrera. *J. Appl. Phys.* **107**, 023504 (5pp) (2010).
 27. **"Structure and growth of vapor-deposited n-dotriacontane films studied by x-ray reflectivity"**, V. del Campo, E. Cisternas, H. Taub, I. Vergara, T. Corrales, P. Soza, U. G. Volkmann, M. Bai, S.-K. Wang, F. Y. Hansen, H. Mo, S. Ehrlich. *Langmuir* **25** (22), 12962 (2009).
 28. **"Crystalline-to-plastic phase transitions in molecularly thin n-dotriacontane films adsorbed on solid surfaces"**, Edgardo A. Cisternas, Tomás P. Corrales, Valeria del Campo, Pamela A. Soza, Ulrich G. Volkmann, Mengjun Bai, Haskell Taub, and Flemming Y. Hansen. *J. Chem. Phys.* **131** (11), 114705 (2009).
 29. **"Substrate Effect on the Optical Response of Thin Palladium Films Exposed to Hydrogen Gas"**, R.J. Matelon, J.I. Avila, U.G. Volkmann, A.L. Cabrera, E.H. Morales and D. Lederman. *Thin Solid Films* **516** (21), 7797-7801 (2008).
 30. **"Easy axis magnetization reversal in cobalt antidot arrays"**, E. Mengotti, L. J. Heyderman, F. Nolting, B. R. Craig, J. N. Chapman, L. Lopez-Diaz, R. J. Matelon, U. G. Volkmann, M. Kläui, U. Rüdiger, C. A. F. Vaz and J. A. C. Bland. *Journal of Applied Physics* **103**, 07D509 (2008).
 31. **"Nanoscale Observation of Delaying in Alkane Films"**, M. Bai, K. Knorr, M. J. Simpson, S. Trogisch, H. Taub, S. N. Ehrlich, H. Mo, U. G. Volkmann and F. Y. Hansen. *Europhys. Lett.* **79**, 26003, 1-6 (2007).
 32. **"Pinning energy of domain walls in MnZn ferrite films"**, V. H. Calle, F. Cuéllar, C. Calle, O. Marín, J. Roa-Rojas, D. Arias, O. Guzmán, J. Prado, M. E. Gómez, U.G. Volkmann, P. Prieto, and A. Mendoza. *Physica Status Solidi (c)* **4**, 4197 (2007). DOI: 10.1002/pssc.200675926
 33. **"Magnetization reversal in cobalt antidot arrays"**, L. J. Heyderman, F. Nolting, D. Backes, S. Czekaj, L. Lopez-Diaz, M. Kläui, U. Rüdiger, C.A.F. Vaz, J.A.C. Bland, R.J. Matelon, U.G. Volkmann and P. Fischer. *Physical Review B* **73**, 214429 (2006).
 34. **"Atomic force microscopy measurements of topography and friction in dotriacontane films adsorbed on a SiO₂ surface"**, S. Trogisch, M.J. Simpson, H. Taub, U.G. Volkmann, M. Pino and F.Y. Hansen. *J. Chem. Phys.* **123**, 154703 (2005).
This article has been selected for the October 31 issue of Virtual Journal of Nanoscale Science & Technology. The Virtual Journal is an edited compilation of links to articles from participating publishers, covering a focused area of frontier research. You can access the Virtual Journal at <http://www.vjnano.org>.
 35. **"Ellipsometric and neutron diffraction study of pentane physisorbed on graphite"**, F. Kruchten, K. Knorr, U.G. Volkmann, H. Taub, F.Y. Hansen, B. Matthies, and K.W. Herwig. *Langmuir* **21** (16), 7507-7512 (2005).

36. **"Magneto-optic properties of Fe/Pd and Co/Pd bilayers under hydrogen absorption"**, D. Lederman, R. J. Matelon, G. B. Cabrera, E. H. Morales, Y. Wang, U. G. Volkmann, and A. L. Cabrera. *Applied Physics Letters* **85**, 615-617 (2004).
37. **"Structure and growth of dotriacontane films on SiO₂ and Ag(111) surfaces: synchrotron x-ray scattering and molecular dynamics simulations"**, H. Mo, S. Trogisch, H. Taub, S. N. Ehrlich, U. G. Volkmann, F. Y. Hansen and M. Pino. *Phys. Stat. Sol.* **201**, 2375-2380 (2004).
38. **"Studies of the structure and growth mode of dotriacontane films by synchrotron x-ray scattering and molecular dynamics simulations"**, H. Mo, S. Trogisch, H. Taub, S. N. Ehrlich, U. G. Volkmann, F. Y. Hansen and M. Pino. *J. Phys.: Condensed Matter* **16**, 2905-2910 (2004).
39. **"Slow Diffusive Motions in a Monolayer of Tetracosane Molecules Adsorbed on Graphite"**, H. Taub, F. Y. Hansen, L. Criswell, D. Fuhrmann, K. W. Herwig, A. Diamo, H. Mo, R. M. Dimeo, D. A. Neumann, and U. G. Volkmann. "Slow Dynamics in Complex Systems", Sendai, Japan, 3-8 November 2003. *AIP Conference Proceedings* **708**, 201-204 (2004).
40. **"Intramolecular Diffusive Motion in Alkane Monolayers Studied by High-resolution Quasielastic Neutron Scattering and Molecular Dynamics Simulations"**, F. Y. Hansen, L. Criswell, D. Fuhrmann, K. W. Herwig, A. Diamo, R. M. Dimeo, D. A. Neumann, U. G. Volkmann, H. Taub, *Phys. Rev. Lett.* **92**, 046103 (2004).
This article has been selected for the February 9, 2004 issue of Virtual Journal of Nanoscale Science & Technology. The Virtual Journal is an edited compilation of links to articles from participating publishers, covering a focused area of frontier research. You can access the Virtual Journal at <http://www.vjnano.org>.
41. **"Ferroelectric Properties of Flash Evaporated Barium Titanate Thin Films"**, R. A. Zárate, R. E. Avila, A. L. Cabrera and U. G. Volkmann, *Ferroelectrics* **313**, 21-31 (2004). DOI: 10.1080/00150190490891265
42. **"A Novel Growth Mode of Alkane Films on a SiO₂ Surface"**, H. Mo, H. Taub, U. G. Volkmann, M. Pino, S. N. Ehrlich, F. Y. Hansen, E. Lu, and P. Miceli, *Chem. Phys. Lett.* **377**, 99-105 (2003).
43. **"High-Resolution Ellipsometric Study of an n-Alkane Film, Dotriacontane, Adsorbed on a SiO₂ Surface"**, U. G. Volkmann, M. Pino, L. A. Altamirano, H. Taub and F. Y. Hansen, *J. Chem. Phys.* **116**, 2107 (2002).
44. **"Growth of n-alkane films on a single-crystal substrate"**, Z. Wu, S. N. Ehrlich, B. Matthies, K.W. Herwig, Pengcheng Dai, U. G. Volkmann, F. Y. Hansen, and H. Taub; *Chem. Phys. Lett.* **348**, 168-174 (2001). DOI: 10.1016/S0009-2614(01)01147-2
45. **"Diffusive Motion in Model Soft Matter Systems: Quasielastic Neutron Scattering Study of Short- and Intermediate-Length Alkane Layers"**. D. Fuhrmann, L. Criswell, H. Mo, H. Taub, K. W. Herwig, U. G. Volkmann, and F.Y. Hansen; *Physica B: Physics of Condensed Matter*, 276-278 (1-4), **345** (2000).

46. **"Ellipsometric Study of Multilayer Growth and Wetting of C₂Cl₂F₄ Physisorbed on Graphite"**. U.G. Volkmann, H. Mannebach and K. Knorr; Langmuir **14**, 4904, 1998.
47. **"Growth Studies of Thin Films of BaTiO₃ using Flash Evaporation"**, R.A. Zarate, A.L. Cabrera, U. G. Volkmann, and V. Fuenzalida; Journal of Physics and Chemistry of Solids **59**, 1639 (1998).
48. **"Thermogravimetric measurements of ferro to paramagnetic transition of evaporated thin iron films"**, A. L. Cabrera, M. Pino-Leiva and U. G. Volkmann, AIP Conference Proceedings **378**, 512 (1996).
49. **"Thermogravimetric measurements of thin iron films magnetization near their Curie temperature"**, A. L. Cabrera, M. Pino-Leiva and U.G. Volkmann, J. Appl. Phys. **77**(11) 5850 (1995).
50. **"Modification of the electrical resistance of thin cobalt films upon the adsorption of carbon monoxide"**, A. L. Cabrera, W. Garrido-Molina, and U. G. Volkmann, Surf. Rev. and Lett. **2** (2), 159 (1995).
51. **"Studies of carbon monoxide and hydrogen adsorption on nickel and cobalt foils aimed at gaining a better insight into the mechanism of hydrocarbons formation"**, A. L. Cabrera, W. H. Garrido and U. G. Volkmann, Cat. Lett. **25**, 115 (1994).
52. **"Wetting Transition of CF₂Cl₂ on Graphite"**, U. G. Volkmann and K. Knorr, Phys. Rev. **B 47**, 4011 (1993).
53. **"Order Parameter Kinetics in the Liquid-Gas Coexistence Region of Ar Monolayers Physisorbed on Graphite"**, H. Mannebach, U. G. Volkmann, J. W. O. Faul, and K. Knorr, Phys. Rev. Lett. **67**, 1566 (1991).
54. **"Multilayer Growth and Wetting Behavior of Nitrogen Physisorbed on Graphite"**, U. G. Volkmann, and K. Knorr, Phys. Rev. Lett. **66**, 473 (1991). DOI: 10.1103/PhysRevLett.66.473
55. **"Ellipsometric Thickness and Coverage of Physisorbed Layers of Xe, Kr, Ar and N₂ on Graphite"**, J. W. O. Faul, U.G. Volkmann, and K. Knorr, Surf. Sci. **227**, 390 (1990).
56. **"Ellipsometric Study of Krypton Physisorbed on Graphite"**, U. G. Volkmann, and K. Knorr, Surf. Sci. **221**, 379 (1989).
57. **"Dipolar and quadrupolar freezing in (KBr)_{1-x}(KCN)_x"**, U.G. Volkmann, R. Böhmer, A. Loidl, K. Knorr, U. T. Höchli, and S. Haussuhl, Phys. Rev. Lett. **56**, 1716 (1986).
58. **"The low-frequency shear response of (KBr)_{1-x}(KCN)_x"**, K. Knorr, U. G. Volkmann, and A. Loidl, Phys. Rev. Lett. **57**, 2544 (1986).

CONTRIBUTIONS TO INTERNATIONAL CONFERENCES AND MEETINGS:

1. **D. Saavedra**, N. Moraga, N. Gomez-Vierling, M. Cisternas, R. Rodriguez, S. Rojas, and U.G. Volkmann. **"FTIR and SRE spectra analysis for supported lipids bilayers (SLB's) with dry incorporation of Gramicidin A"**. DPG March Meeting, March 26-31, 2023, Dresden, Germany. <https://www.dpg-verhandlungen.de/year/2023/conference/skm/part/bp/session/11/contribution/10>
2. **D. Saavedra**, M. Soto-Arriaza, N. Moraga, N. Gomez-Vierling, M. Cisternas, and U.G. Volkmann. **"Detection of Gramicidin by DPH fluorescence technique in supported phospholipids bilayers (SLB's) on SiO₂ substrate"**. DPG March Meeting, March 26-31, 2023, Dresden, Germany. <https://www.dpg-verhandlungen.de/year/2023/conference/skm/part/bp/session/11/contribution/11>
3. **N. Moraga**, D. Saavedra, N. Gomez-Vierling, M. Cisternas, M.J. Retamal, and U.G. Volkmann. **"Homogenization of DPPC films deposited from the gas phase onto silicon substrates"**. DPG March Meeting, March 26-31, 2023, Dresden, Germany. <https://www.dpg-verhandlungen.de/year/2023/conference/skm/part/bp/session/11/contribution/12>
4. **Nancy Gomez-Vierling**, Marcelo A. Cisternas, María José Retamal, Nicolás Moraga, Marco A. Soto-Arriaza, Tomás P. Corrales, Felix Kleemann, and Ulrich G. Volkmann. **"Study of the temporal stability of evaporated SLBs for technological applications"**. DPG March Meeting, September 4-9, 2022, Regensburg, Germany.
5. **Nicolás Moraga**, Gabriel Alfaro, Nancy Gomez-Vierling, Daniel Saavedra, Marcelo A. Cisternas, María José Retamal, Marco A. Soto-Arriaza, Tomás P. Corrales, Felix Kleemann, and Ulrich G. Volkmann. **"Measurements of topologies and Young moduli of DPPC films deposited from the gas phase onto silicon substrates at different temperatures"**. DPG March Meeting, September 4-9, 2022, Regensburg, Germany.
6. **Nancy C. Gómez-Vierling**, Gabriel Alfaro, Nicolas Moraga, Marcelo A. Cisternas, María José Retamal, Tomas P. Corrales and Ulrich G. Volkmann. **"Stability of SLBs formed without solvents"**. 1st International Congress on Nano and Biotechnology, July 22-24, 2021, Department of Chemistry, Sciences Faculty, Universidad Nacional Agraria La Molina, Peru.
7. Marcelo A. Cisternas, Francisca Palacios-Coddou, Sebastian Molina, Maria Jose Retamal, Nicolas Moraga, Hugo Zelada, Marco A. Soto-Arriaza, Tomas P. Corrales, and **Ulrich G. Volkmann**. **"Ellipsometric study of DPPC Supported Lipid bilayer formation evaporated by a solvent-free process on silicon substrates"**. DPG March Meeting, March 16-20, 2020, Dresden, Germany. **CANCELED due to SARS-CoV-2 / Covid-19.**
8. **Maria Jose Retamal**, Marcelo A. Cisternas, Francisca Palacios-Coddou, Sebastian Molina, Nicolas Moraga, Hugo Zelada, Marco A. Soto-Arriaza, Tomas P. Corrales, and Ulrich G. Volkmann. **"Verification of evaporated dry phospholipid bilayer formation with AFM"**. DPG March Meeting, March 16- 20, 2020, Dresden, Germany. **CANCELED due to SARS-CoV-2 / Covid-19.**
9. Sebastian Molina, Marcelo Cisternas, Maria J. Retamal, Nicolas Moraga, Hugo Zelada, **Jonas Fortmann**, Tomas P. Corrales, Patrick Huber, Marco Soto-Arriaza, and Ulrich G. Volkmann. **"Soft Thermal Treatment Stabilizes Vacuum-deposited Phospholipid Layers for Sensor Applications"**. DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.
10. Nicolas Moraga, Marcelo Cisternas, Diego Diaz, Rodrigo Catalan, Maria J. Retamal, Tomas P. Corrales, Mark Busch, Patrick Huber, Marco Soto-Arriaza, and **Ulrich G. Volkmann**. **"Prolonged Phospholipid Bilayer Stability due to Hydration on Porous Silicon: Pore Diameter and Porosity Optimization"**. DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.
11. Maria J. Retamal, **Rodrigo Catalan**, Marcelo Cisternas, Nicolas Moraga, Diego Diaz, Tomas P. Corrales, Mark Busch, Patrick Huber, Marco Soto-Arriaza, and Ulrich G. Volkmann. **"Temperature**

- dependence of the elastic modulus of vapor deposited phospholipid bilayers on solid substrates**". DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.
12. **Diego Diaz**, Tomas P. Corrales, Maria J. Retamal, Marcelo Cisternas, Nicolas Moraga, Rodrigo Catalan, Mark Busch, Patrick Huber, Marco Soto-Arriaza, and Ulrich G. Volkmann. "**Wetting of n-Alkane Nano-Patterns: Evidence of Macroscopic Line Tension Effects and Adaptive Wetting**". DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.
 13. Robert A. Wheatley, Martin Roble, Sebastian Molina, **Diego Diaz**, Susana D. Rojas, Birger Seifert, Sascha Wallentowitz, Donovan E. Diaz-Droguett, and Ulrich G. Volkmann. "**Wetting Properties of Electrochemically Active Polycrystalline CuFeO₂, CuMO₂ and CuFe_xM_{1-x}O₂ Delafossite Porous Surfaces**". DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.
 14. Nicolas Moraga, **Marcelo Cisternas**, Diego Diaz, Rodrigo Catalan, Maria J. Retamal, Tomas P. Corrales, Mark Busch, Patrick Huber, Marco Soto-Arriaza, and Ulrich G. Volkmann. "**Formation and phase transitions of vapour deposited phospholipid bilayers on porous silicon substrates**". DPG March Meeting, March 11-16, 2018, Berlin, Germany.
 15. MJ Retamal, R Catalan, **M Cisternas**, N Moraga, D Diaz, TP Corrales, M Busch, P Huber, M Soto-Arriaza, and UG Volkmann. "**Study of elastic modulus of phospholipid bilayers**". DPG March Meeting, March 11-16, 2018, Berlin, Germany.
 16. Diego Diaz, Robert Wheatley, Martín Roble, **Marcelo Cisternas**, Donovan Diaz, Ulrich G. Volkmann, Alejandro Cabrera, Birger Seifert, and Sascha Wallentowitz. "**Wetting properties of CuFeO₂ delafossite for photo-catalytic processes**". DPG March Meeting, March 11-16, 2018, Berlin, Germany.
 17. Diego Diaz, Tomas P. Corrales, Maria J. Retamal, **Marcelo Cisternas**, Nicolas Moraga, Rodrigo Catalan, Mark Busch, Patrick Huber, Marco Soto-Arriaza, and Ulrich G. Volkmann. "**Rearrangement of nanopatterns: Wetting of n-alkane Molecular Films**". DPG March Meeting, March 11-16, 2018, Berlin, Germany.
 18. **Marcelo A. Cisternas**, Nicolas Moraga, Rodrigo Catalan, Maria Jose Retamal, Diego Diaz, Tomas P. Corrales, Tomas Perez-Acle, Marcos Soto-Arriaza, Patrick Huber, Birger Seifert and Ulrich G. Volkmann. "**Optimized pore geometry on silicon substrate surface for long time phospholipid cell membrane stability**". American Physical Society (APS) March Meeting, March 5-9, 2018, Los Angeles, California, USA.
 19. Ulrich G. Volkmann, Rodrigo Catalan, Maria Jose Retamal, **Marcelo A. Cisternas**, Nicolas Moraga, Diego Diaz, Tomas P. Corrales, Marcos Soto-Arriaza and Patrick Huber. "**Atomic force microscope (AFM) study of elastic modulus of artificial phospholipid membranes**". American Physical Society (APS) March Meeting, March 5-9, 2018, Los Angeles, California, USA.
 20. **Marcelo A. Cisternas**, Maria Jose Retamal, Partha Saikia, Nathalie Casanova, Nicolas Moraga, America Chandia, Alejandra Alvarez, Donovan E. Diaz-Droguett, Fernando Guzman, Stephan Mändl, Darina Manova, Tomas P. Corrales, Ulrich G. Volkmann, Mario Favre and Heman Bhuyan. "**Study of phospholipid bilayer supported on chitosan-titanium nitride coatings produced by plasma immersion ion implantation (PIII)**". 62nd Annual Meeting Biophysical Society (BPS 2018) 17-21 February, San Francisco, California, USA.
 21. Ulrich G. Volkmann, Rodrigo Catalan, Maria Jose Retamal, **Marcelo A. Cisternas**, Nicolas Moraga, Diego Diaz, Tomas P. Corrales, Tomas Perez-Acle, Marcos Soto-Arriaza and Patrick Huber. "**AFM study of elastic module of physical-vapor-deposited phospholipid membranes**". 62nd Annual Meeting Biophysical Society (BPS 2018) 17-21 February, San Francisco, California, USA.
 22. Tomas P. Corrales, Diego Diaz, Rodrigo Catalan, Maria Jose Retamal, **Marcelo Cisternas**, Nicolas Moraga, Marcos Soto-Arriaza and Ulrich G. Volkmann. "**Formation and morphology of singles phospholipid bilayers formed by velocity-controlled dip-coating**". 62nd Annual Meeting Biophysical Society (BPS 2018) 17-21 February, San Francisco, California, USA.

23. Diego Diaz, **Tomas P. Corrales**, Nicolas Moraga, Marcelo Cisternas, Rodrigo Catalan, Maria Jose Retamal, Patrick Huber, Ulrich G. Volkmann. **“The Reverse Coffee-Ring Effect: Wetting of n-alkane Molecular Films”**. 31st Conference of the European Colloid and Interface Society (ECIS 2017) 3-8 September, Madrid, Spain.
24. Rodrigo Catalan, Maria Jose Retamal, Diego Diaz, Marcelo Cisternas, Nicolas Moraga, Tomas P. Corrales, Marco Soto-Arriaza, Patrick Huber, and Ulrich G. Volkmann. **“AFM study of evaporated phospholipid bilayer on thin film chitosan in liquid environment”**. DPG March-Meeting, March 19 to 24, 2017, Dresden, Germany.
25. Marcelo Cisternas, Vanessa Zepeda, Maria Jose Retamal, Tomas P. Corrales, Nicolas Moraga, Diego Diaz, Rodrigo Catalan, Sebastian Gutierrez, Tomas Perez-Acle, Patrick Huber, and Ulrich G. Volkmann, **“Study of the ion channels insertion in artificial membranes”**. DPG March-Meeting, March 19 to 24, 2017, Dresden, Germany.
26. Ulrich G. Volkmann, María J. Retamal, Marcelo A. Cisternas, Vanessa Zepeda, Nicolás Moraga, Rodrigo Catalán, Diego Díaz, Tomas P. Corrales, Tomas Pérez-Acle, Sebastián E. Gutiérrez-Maldonado, Marco Soto-Arriaza, Mark Busch, Patrick Huber. **“Vapor-deposited phospholipid membranes on chitosan and porous silicon (psi) for novel lab-on-chip platforms to study membrane-proteins”**. Biophysical Society, 61th Annual Meeting, February 11-15, 2017 - New Orleans - Louisiana -USA.
27. U.G. Volkmann, D. Diaz, M.J. Retamal, M. Cisternas, T. Corrales, M. Busch, P. Huber. **“Wetting properties of n-alkane nanostructures”**. Bio-inspired Materials 2016, International School and Conference on Biological Materials Science. 22 - 25 February 2016, Potsdam, Germany.
28. U.G. Volkmann, M.J. Retamal, M. Cisternas, B. Seifert, T.P. Corrales, S. Gutiérrez, T. Pérez-Acle, M. Busch, P. Huber. **“Study of evaporated self-hydrated phospholipid bilayers”**. Bio-inspired Materials 2016, International School and Conference on Biological Materials Science. 22 - 25 February 2016, Potsdam, Germany.
29. U.G. Volkmann, M.J. Retamal, M. Cisternas, N. Moraga, R. Catalan, T.P. Corrales, S. Gutiérrez, T. Pérez-Acle, M. Busch, P. Huber. **“Surface morphology of vapor deposited chitosan thin films”**. Bio-inspired Materials 2016, International School and Conference on Biological Materials Science. 22 - 25 February 2016, Potsdam, Germany.
30. Maria Jose Retamal, Tomas Corrales, Marcelo Cisternas, Nicolas Moraga, Sebastian Gutierrez, Tomas Perez-Acle, Patrick Huber, and Ulrich Volkmann. **“Surface morphology of vapor deposited chitosan thin films”**. DPG March-Meeting, March 6-11, 2016, Regensburg, Germany.
31. Diego Diaz, Tomas Corrales, Maria Retamal, Marcelo Cisternas, Patrick Huber, and Ulrich Volkmann. **“Wetting properties of n-alkane nanostructures”**. DPG March-Meeting, March 6 to 11, 2016, Regensburg, Germany.
32. Maria Jose Retamal, **Tomas P. Corrales**, Marcelo A. Cisternas, Nicolas H. Moraga, Diego I. Diaz, Rodrigo E. Catalan, Birger Seifert, Patrick Huber, and Ulrich G. Volkmann. **“Surface Morphology of Vapor-Deposited Chitosan: Evidence of Solid State Dewetting during the Formation of Biopolymer Films”**. 30th Conference of The European Colloid and Interface Society (ECIS 2016), 4-9 September, Rome, Italy.
33. Tomas P. Corrales, Mengjun Bai, Valeria del Campo, Maria Retamal, Moshe Deutsch, Haskell Taub, Klaus Knorr, Ulrich G. Volkmann, and Patrick Huber. **“Spontaneous Formation of Nanopatterns in Velocity-Dependent Dip-Coated Organic Films: From Dragonflies to Stripes”**. DPG March-Meeting, March 15 to 20, 2015, Berlin, Germany. <http://www.dpg-verhandlungen.de/year/2015/conference/berlin/part/cpp/session/46/contribution/11>

34. Maria J. Retamal, Marcelo A. Cisternas, Sebastian E. Gutierrez-Maldonado, Tomas Perez-Acle, Birger Seifert, Mark Busch, Patrick Huber, and Ulrich G. Volkmann. **“Ultra-thin self-hydrated artificial membrane composed of DPPC and chitosan deposited without solvents”**. DPG March-Meeting, March 15 to 20, 2015, Berlin, Germany. <http://www.dpg-verhandlungen.de/year/2015/conference/berlin/part/cpp/session/56/contribution/5>
35. Marcelo Cisternas, Alvaro Henriquez, Heman Bhuyan, Maria Retamal, Mario Favre, Ulrich Volkmann, Darina Manova, Stephan Mandl, and Fernando Guzman. **“Formation and study of TiN coatings on titanium substrate using plasma immersion ion implantation for applications in biological membranes”**. DPG March-Meeting, March 15 to 20, 2015, Berlin, Germany. <http://www.dpg-verhandlungen.de/year/2015/conference/berlin/part/bp/session/24/contribution/12>
36. M.J. Retamal, M.A. Cisternas, S.E. Gutierrez-Maldonado, T. Perez-Acle, B. Seifert, M. Busch, P. Huber, U.G. Volkmann, Valeria del Campo. **“The Formation of a Self-Hydrated Artificial Phospholipid Membrane on Ultra-Thin Chitosan Layer Deposited from the Gas-Phase”**. Pacific Rim Symposium on Surfaces, Coatings and Interfaces (PacSurf 2014), December 4 – 11, Kohala Coast, Hawaii. http://www2.avs.org/pacsurf2014/Papers/Paper_BI-TuM6.html
37. S.E. Gutierrez-Maldonado, M.J. Retamal, M. Cisternas, U.G. Volkmann, T. Perez-Acle. **“Physicochemical characterization of SiO₂-supported membranes: a molecular dynamics study”**. ISCB LA / X-Meeting / BSB / Solbio2014, 28 – 31 October 2014, Belo Horizonte, Brasil.
38. S.E. Gutierrez-Maldonado, M.J. Retamal, M. Cisternas, U.G. Volkmann, T. Perez-Acle. **“Physicochemical characterization of SiO₂-supported membranes: a molecular dynamics study”**. 1st Latin American Student Council Symposium. ISCB LA 2014, October 27, 2014, Belo Horizonte, Brasil.
39. Marcelo Cisternas, Maria J. Retamal, Sebastian Gutierrez, Mark Busch, Patrick Huber, Tomas Perez-Acle, Ulrich Volkmann, and Michael Kappl: **“Hydration effects of chitosan on silicon”**. DPG March-Meeting, March 30 to 4 April 4, 2014, Dresden, Germany. <http://www.dpg-verhandlungen.de/year/2014/conference/dresden/part/ds/session/43/contribution/14>
40. Maria Jose Retamal, Marcelo Cisternas, Mark Busch, Sebastian Gutierrez, Patrick Huber, Tomas Perez-Acle, Michael Kappl and Ulrich Volkmann: **“A prototype biosensor: artificial cell membrane on porous silicon”**. APS March Meeting, March 3-7, 2014, Denver, Colorado, USA. <http://meetings.aps.org/link/BAPS.2014.MAR.P1.89>
41. Ulrich G. Volkmann, María J. Retamal, Carmen González, Mauricio Sarabia, Marcelo Cisternas, Michael Kappl and Tomás Corrales, **“Physical vapor deposition (PVD) of 1,2-dipalmitoyl-sn-3-phosphoglycerocholine (DPPC) and membrane formation on SiO₂/Si(100) substrate”**. Presented at the DPG spring meeting, March 10-15, 2013, Regensburg, Germany. <http://www.dpg-verhandlungen.de/year/2013/conference/regensburg/part/bp/session/21/contribution/5>
42. Maria J. Retamal, Carmen Gonzalez, Mauricio Sarabia, Marcelo Cisternas, and Ulrich G. Volkmann, **“Study of phase transitions on DPPC bilayers deposited by PVD on top of low viscosity chitosan scaffolds of different thicknesses”**. Presented at the DPG spring meeting, March 10-15, 2013, Regensburg, Germany. <http://www.dpg-verhandlungen.de/year/2013/conference/regensburg/part/cpp/session/13/contribution/12>
43. Ulrich G. Volkmann, María J. Retamal, Carmen González, Mauricio Sarabia, Marcelo Cisternas, Michael Kappl and Tomás Corrales, **“Physical vapor deposition (PVD) of 1,2-dipalmitoyl-sn-3-phosphoglycerocholine (DPPC) and membrane formation on SiO₂/Si(100) substrate”**. Presented at the DPG spring meeting, March 10-15, 2013, Regensburg, Germany.
44. Maria J. Retamal, Carmen Gonzalez, Mauricio Sarabia, Marcelo Cisternas, and Ulrich G. Volkmann, **“Study of phase transitions on DPPC bilayers deposited by PVD on top of low viscosity chitosan scaffolds of different thicknesses”**. Presented at the DPG spring meeting, March 10-15, 2013, Regensburg, Germany.

45. Ulrich G. Volkmann: “**Study of Organic thin films and membranes on solid substrates**”; **Invited Lecture** presented at the Max Planck – Chile Research Seminar, 27 - 29 June 2012, Berlin, Germany.
46. C.M. González, U.G. Volkmann, K. López, M. Cisternas, M. Sarabia, C.A. Terraza, “**Optical fibers recovered with a silicated poly(amide) matrix and host molecules sensible. Detection of low concentration of H₂, N₂ and CO₂**”. Presented at VIII Congreso internacional de química e ingeniería química, 9 – 12 octubre de 2012, La Habana, Cuba.
47. Ulrich G. Volkmann: “Organic films and membranes on solid substrates”; Invited Talk presented at International Conference and Workshop on Nanostructured Ceramic & other Nanomaterial (ICWNCN) March 13-16, 2012. Department of Physics and Astrophysics, University of Delhi, India.
48. Ulrich G. Volkmann, Carmen González, Marcelo Cisternas, María José Retamal, Mauricio Sarabia, Rosario Ortega and Karina López. Sebastián E. Gutiérrez-Maldonado, Raúl Araya-Secchi, Tomas Pérez-Acle. “**Physical vapor deposition of DPPC on silicon substrate and studies of phase transition temperature with different techniques**”. Presented at International Conference and Workshop on Nanostructured Ceramic & other Nanomaterial (ICWNCN) March 13-16, 2012. Department of Physics and Astrophysics, University of Delhi, India.
49. María José Retamal, Ulrich G. Volkmann, Carmen González, Marcelo Cisternas, Mauricio Sarabia, Rosario Ortega and Karina López. “**Phase transition of DPPC visualized by Imaging Ellipsometry, AFM and Raman spectroscopy**”. Presented at International Conference and Workshop on Nanostructured Ceramic & other Nanomaterial (ICWNCN) March 13-16, 2012. Department of Physics and Astrophysics, University of Delhi, India.
50. María José Retamal, Ulrich G. Volkmann, Carmen González, Marcelo Cisternas, Mauricio Sarabia, Rosario Ortega and Karina López. “**Study of phase transitions of thin DPPC films on SiO₂/Si substrates adsorbed by dip coating from buffer solutions at controlled humidity and temperature**”. Presented at International Conference and Workshop on Nanostructured Ceramic & other Nanomaterial (ICWNCN) March 13-16, 2012. Department of Physics and Astrophysics, University of Delhi, India.
51. Sebastián E. Gutiérrez-Maldonado, Raul Araya-Secchi, María José Retamal, Carmen González, Ulrich G. Volkmann, Tomas Pérez-Acle. “**Exploring the ordering of dotriacontane supported on silica surfaces**”. Presented at International Conference and Workshop on Nanostructured Ceramic & other Nanomaterial (ICWNCN) March 13-16, 2012. Department of Physics and Astrophysics, University of Delhi, India.
52. Zoraya E. López Cabaña, Carmen M. González Henríquez, Ulrich G. Volkmann, Patrick Huber, Marcelo Cisternas, Rosario Ortega and Mauricio Sarabia. “**Phase Transitions in Chitosan/DPPC membrane multilayer as a function of hydration**”. Presented at DPG Spring Meeting 2012, Berlin (Germany), 25 March 2012 - 30 March 2012.
53. Carmen M. González Henríquez, Ulrich G. Volkmann, Marcelo Cisternas, Rosario Ortega, Mauricio Sarabia, Patrick Huber and Álvaro Henríquez. “**Design and Characterization of a gas sensor system consisting of a Poly(amide-imide) and Cryptophane-A covered optical fiber**”. Presented at DPG Spring Meeting 2012, Berlin (Germany), 25 March 2012 - 30 March 2012.
54. K. A. López, R. P. Ortega, C. M. González, M. J. Retamal, U. G. Volkmann, “**Estudio de las Propiedades Dependientes de la Temperatura de DPPC y DMPC con Elipsometría de Imágenes y AFM**”; Presented at the 1st International Conference on Materials Science for Nanotechnology, Catalysis, and BioMedicine, October 24–28, 2011, Valdivia, Chile.
55. R. P. Ortega, K. A. López, U. G. Volkmann, C. M. González, M. J. Retamal, M. A. Cisternas, M. Sarabia, H. Taub, “**Characterization of Phase Transitions and Growth of Organophosphate Molecules using Very High Resolution Ellipsometry and Raman Spectroscopy**”; Presented at the 1st International Conference on Materials Science for Nanotechnology, Catalysis, and BioMedicine,

- October 24–28, 2011, Valdivia, Chile.
56. C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Barriga, A. L. Cabrera, U. G. Volkmann, **“Generation of conductivity through transfer charge properties in flourene and diphenylsilane-containing poly(ester)s and poly(amide)s”**; Presented at the European Polymer Congress 2011, XII Congress of the GEP, June 26 to July 1, 2011, Granada, Spain.
 57. C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Barriga, U. G. Volkmann, A. L. Cabrera, E. Ramos, M. Pavez, **“Poly(amide-imide)s containing silarylene and L-aminoacid moieties. Relation with electrical conductivity and Raman active vibrations”**; Presented at the European Polymer Congress 2011, XII Congress of the GEP, June 26 to July 1, 2011, Granada, Spain.
 58. C. M. González-Henríquez, L. H. Tagle, C. A. Terraza, A. Cañete, A. Leiva, A. Barriga, U. G. Volkmann, A. L. Cabrera, E. Ramos, M. Pavez, **“Resonance effect on conductivity of poly(esters)s containing silarylene and thiophene moieties after polarized by application of an external field”**; Presented at the European Polymer Congress 2011, XII Congress of the GEP, June 26 to July 1, 2011, Granada, Spain.
 59. C. M. González Henríquez, L. H. Tagle, C. A. Terraza Inostroza, A. Barriga González, A. L. Cabrera and U. G. Volkmann, **“Generation of Conductivity through Charge Transfer Properties for Polyesters and Polyamides with Characteristic Functional Groups”**; Presented at the APS March Meeting, March 21–25, 2011, Dallas, Texas.
 60. M. J. Retamal, V. D. Samith, U. G. Volkmann, **“Study of pluronic F68 molecules on silicon with Atomic Force Microscopy (AFM)”**; Presented at the APS March Meeting, March 21–25, 2011, Dallas, Texas.
 61. C. M. González Henríquez, L. H. Tagle, C. A. Terraza Inostroza, A. Barriga González, A. L. Cabrera, U. G. Volkmann, E. Ramos-Moore and M. Pavez, **“Structural Symmetry Breaking of Silicon Containing Polymers and their Relation with Electrical Conductivity and Raman Active Vibrations”**; Presented at the APS March Meeting, March 21–25, 2011, Dallas, Texas.
 62. M. A. Cisternas, V. del Campo, A. L. Cabrera, U. G. Volkmann, F. Y. Hansen, H. Taub, **“Thermal Programmed Desorption of C₃₂H₆₆”**; Presented at the APS March Meeting, March 21 – 25, 2011, Dallas, Texas.
 63. S. Gutiérrez, R. Araya-Secchi, M. J. Retamal, U. G. Volkmann, T. Perez-Acle, **“Molecular Dynamics Simulations of Dotriacontane films supported on a SiO₂ surface”**; Presented at the APS March Meeting, March 21 – 25, 2011, Dallas, Texas.
 64. T. Corrales, P. Homm, P. Ferrari, M.J. Retamal, E.A. Cisternas, V. del Campo, U.G. Volkmann: **“Coverage and Morphology Dependence of Dip Coated Organic Films on Withdrawal Velocity”**. Presented at the DPG Spring Meeting, March 22 – 29 2010, Regensburg, Germany.
 65. V. Samith, M.J. Retamal, I. Vergara, E. Ramos-Moore, U.G. Volkmann, and R. Maccioni: **“Critical micellar concentration (CMC) dependence of pluronic effects on neuronal cells in culture”**. Presented at the DPG Spring Meeting, March 22 – 29 2010, Regensburg, Germany.
 66. C. Calle, E.A. Cisternas, G. Martínez, P. Pedraza, and U.G. Volkmann: **“Construction of an imaging radiation pyrometer for temperature and spectral monitoring in harsh environment conditions”**. Presented at the DPG Spring Meeting, March 22 – 29 2010, Regensburg, Germany.
 67. T.P. Corrales, P. Homm, P. Ferrari, M.J. Retamal, E.A. Cisternas, V. del Campo, U.G. Volkmann, H. Taub, and F.Y. Hansen: **“Self-Assembly of Submonolayer-Coverage Organic Films”**. Presented at the APS Meeting, March 15 – 19, 2010 Portland, Oregon, USA. http://absimage.aps.org/image/MWS_MAR10-2009-007862.pdf
 68. G.Bella, Y.Benhammou, M.Diaz, E.Duchovni, E.Etzion, A.Klier, N.Lupo, G.Mikenberg, D.Milstein,

- Y.Munwes, O.Sasaki, M.Shoa, V.Smakhtin, and U.G. Volkmann: **“Position measurement and triggering with large scale Thin Gap Chambers for the super LHC”**. Presented at the 12th Vienna Conference on Instrumentation, February 5 – 20, 2010 Vienna, Austria.
69. Edgardo A. Cisternas, Tomás Corrales, Valeria del Campo, Ulrich G. Volkmann, Haskell Taub, and Flemming Y. Hansen: **“Crystalline to semi-crystalline phase transitions in thin *n*-Dotriacontane films on solid surfaces”**. Presented at the DPG Spring Meeting, March 22 – 27, 2009 Dresden, Germany.
 70. Valeria del Campo, Edgardo A. Cisternas, Ignacio Vergara, Tomás P. Corrales, Ulrich G. Volkmann, Haskell Taub, Haiding Mo, and Steven Ehrlich: **“Study of Alkane Structure and Phase Transitions with X-Ray Reflectivity”**. Presented at the DPG Spring Meeting, March 22 – 27, 2009 Dresden, Germany.
 71. F.Y. Hansen (Tech. U. of Denmark), P. A. Soza (P.U. Catolica Chile), H. Taub (U. Mo-Columbia), U. G. Volkmann (P.U. Catolica Chile): **“Molecular Dynamics Simulation of friction in contact-mode Atomic Force Microscopy of alkane films and nanoparticles”**. Presented at the APS Meeting, March 16-20, 2009 Pittsburg, Pennsylvania, USA. <http://meetings.aps.org/Meeting/MAR09/Event/100660>
 72. S.-K. Wang, M. Bai, H. Taub (U. Mo.-Columbia), E. Mamontov, K.W. Herwig (ORNL), F.Y. Hansen (Tech. U. Denmark), J.R.D. Copley, T. Jenkins, M. Tyagi, (NIST), U.G. Volkmann (P. U. Catolica Chile): **“Non-translational Molecular Diffusive Motion on Two Different Time Scales in Alkane Nanoparticles”**. Presented at the APS Meeting, March 16-20, 2009 Pittsburg, Pennsylvania, USA. <http://meetings.aps.org/Meeting/MAR09/Event/100669>
 73. J.I. Avila, R. Trabol, U.G. Volkmann, A.L. Cabrera (Pontificia Universidad Catolica de Chile), C. Romero, P. Lievens (Katholieke Universiteit Leuven): **“Hydrogen absorption by a Pd film detected by microgravimetry”**. Presented at the APS Meeting, March 16-20, 2009 Pittsburg, Pennsylvania, USA. <http://meetings.aps.org/Meeting/MAR09/Event/94587>
 74. V. del Campo, E. A. Cisternas, I. Vergara, T. Corrales, U. G. Volkmann , M. Bai, S. Wang, H. Taub , H. Mo, S. Ehrlich: **“Study of Alkanes Structure and Phase Transitions with X-Ray Reflectivity”**. Presented at the 14th International Conference on Solid Films and Surfaces, June 29 – July 4, 2008 Dublin, Ireland.
 75. E. A. Cisternas, V. del Campo, T. P. Corrales, U. G. Volkmann: **“Study of solid-solid phase transitions in thin *n*-alkane films”**. Presented at the 14th International Conference on Solid Films and Surfaces, June 29 – July 4, 2008 Dublin, Ireland.
 76. S.-K. Wang, M. Bai, H. Taub, M. Rheinstadter (U. Mo.-Columbia), J. R. D. Copley , V. Garcia Sakai , G. Gasparovic (NIST), U. G. Volkmann (P. U. Catolica Chile) and F. Y. Hansen (Tech. U. of Denmark): **“Studies of the Dynamics of Alkane Nanoparticles”**. Presented at the APS Meeting, March 10-14, 2008 New Orleans, Louisiana, USA. <http://meetings.aps.org/Meeting/MAR08/Event/76176>
 77. M. Bai , H. Taub , A. Diama (U. Mo.-Columbia), K. Knorr (U. des Saarlandes), U. G. Volkmann (P. U. Catolica Chile) and F. Y. Hansen (Tech. U. of Denmark): **“Flow Induced Growth of Striped Alkane Monolayers”**. Presented at the APS Meeting, March 10-14, 2008 New Orleans, Louisiana, USA. <http://meetings.aps.org/Meeting/MAR08/Event/76754>

78. F.Y. Hansen (Tech. Univ.of Denmark), P. Soza (P.U. Catolica Chile), H. Taub (U.Mo.-Columbia) and U.G. Volkmann (P.U. Catolica Chile): **“Molecular dynamics studies of the structure and dynamics of `perpendicular` layers of *n*-alkane molecules adsorbed on a solid substrate”**. Presented at the APS Meeting, March 10-14, 2008 New Orleans, Louisiana, USA.
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80. P. Soza (P.U. Catolica Chile), F.Y. Hansen (Tech. Univ. of Denmark), H. Taub (U. Mo.-Columbia) and U.G. Volkmann (P.U. Catolica Chile): **“Molecular dynamics simulations of layers of linear and branched alkanes under shear”**. Presented at the APS Meeting, March 10-14, 2008 New Orleans, Louisiana, USA.
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<http://meetings.aps.org/Meeting/MAR07/Event/60115>
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86. V. del Campo, U.G. Volkmann, A.L. Cabrera, M. Pino, E. Cisternas, H. Taub, and F. Y. Hansen: **“Kinetics and Structure of *n*-Alkane Desorption from SiO₂/Si-Surfaces”**. Presented at the Pan-American Advanced Studies Institute PASI: Novel Materials for Micro- and Nanoelectronics, January 8-18, 2007, Reñaca, Chile.

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<http://meetings.aps.org/Meeting/MAR06/Event/45268>
94. Matthew Simpson, Mengjun Bai, Klaus Knorr, Haiding Mo, Haskell Taub (U. Mo.-Columbia), Steven Ehrlich (Brookhaven Nat. Lab.), Ulrich Volkmann (P. U. Católica de Chile), and Flemming Hansen (Tech. U. Denmark): **"Topography and Wetting of Dotriacontane Films on Graphite Surfaces"**. Presented at the APS Meeting, March 13 - 17, 2006 Baltimore, Maryland, USA.
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 101. J.I. Avila, R.J. Matelon, U.G. Volkmann, A.L. Cabrera (Universidad Católica, Departamento de Física-Santiago-Chile): "**Kinetics of PdO reduction with hydrogen**". Presented at the APS Meeting, March 21 - 25, 2005 Los Angeles, California, USA.
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PDF download: <http://www.dfi.uchile.cl/surface/pdf/162.pdf>

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- Structure of Multilayer Films of Intermediate-Length Alkane Molecules adsorbed on a Solid Surface".** Presented at Congreso Latinoamericano de Ciencias de Superficies y sus Aplicaciones (CLACSA 2003), Pucón, Chile, December 7-12, 2003.
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<http://www.aps.org/meet/MAR01/baps/abs/S6020011.html> .
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128. "**Diffusive Motion in Model Soft Matter Systems: Quasielastic Neutron Scattering Study of Short- and Intermediate-Length Alkane Layers**", D. Fuhrmann, H. Mo, U. G. Volkmann, K.W. Herwig, H. Taub and F.Y. Hansen, accepted for publication in ECNS99 proc., C12.
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130. U. G. Volkmann; “**Ellipsometric Measurements of Kr, Ar, Xe, Nitrogen, and Dichlorodifluoromethane on Graphite**”; presented at the Advanced Study Institute (ASI) "Phase Transitions in Surface Films", June 19th to June 29th, 1990, Erice, Sicily.

CONTRIBUTIONS TO NATIONAL CONFERENCES AND MEETINGS:

1. D. Saavedra, M. Soto-Arriaza, N. Moraga, N. Gomez-Vierling, M.A. Cisternas, y U.G. Volkmann. **"Detección de Gramicidina por medio de técnicas de fluorescencia en películas delgadas de DPPC sobre sustrato de silicio"**. XXIII Simposio Chileno de Física, 22-24 noviembre 2022, Valparaíso, Chile.
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73. A. Zarate, A. L. Cabrera, U. G. Volkmann, J. Lisoni y V. Fuenzalida; "**Fabrication of Thin Films Perovskite-Type of BaTiO₃**"; X Simposio Chileno de Física; 27 al 29 de Noviembre de 1996, Valparaíso. Extended abstract published in the proceeding of the Symposium, p. 221-222 (1996).
74. U. G. Volkmann, K. Knorr y M. Pino; "**Construction of a High Resolution in Situ Ellipsometer: A Powerful Tool for Study of Ultra Thin Film Deposition and Growth Behavior**"; X Simposio Chileno de Física; 27 al 29 de Noviembre de 1996, Valparaíso. Extended abstract published in the proceeding of the Symposium, p. 215-216 (1996).
75. U. G. Volkmann, F. Claro y S. E. Melo Ibarra; "**Propagación Óptica a Través de un Sistema de Multicapas**"; X Simposio Chileno de Física; 27 al 29 de Noviembre de 1996, Valparaíso. Extended abstract published in the proceeding of the Symposium, p. 217-218 (1996).
76. U. G. Volkmann y K. Knorr; "Fabricación de un Criostato con Cámara de Ultra Alto Vacío (UHV) para Investigación de Películas Delgadas"; VI Simposio Nacional de Física Experimental y Aplicada; 9 al 12 de Enero de 1996, Temuco. Abstract published in the proceeding of the Symposium, p. 275-278 (1996).
77. S. E. Melo Ibarra, F. Claro y U. G. Volkmann; "**Transporte Fónico a través de una doble barrera**"; VI Simposio Nacional de Física Experimental y Aplicada; 9 al 12 de Enero de 1996, Temuco. Abstract published in the proceeding of the Symposium, p. 374-377 (1996).
78. S. E. Melo Ibarra, F. Claro y U. G. Volkmann; "**Optical Propagation in Thin Film Multilayer Devices**"; II Simposio Franco-Chileno en Ciencia de Materiales; 2 a 4 de Noviembre de 1995, Valparaíso. Abstract published in the proceeding of the Symposium, p. 55-56 (1995).
79. R. A. Zarate, A. L. Cabrera, V. Fuenzalida y U. G. Volkmann; "**Propiedades dieléctricas de películas delgadas de BaTiO₃ cerca de la transición de fase ferro-paraeléctrica**"; V. Chilean Symposium of

- Experimental and Applied Physics, January 1994, Antofagasta. Published in the proceeding of the Symposium, p.91-93 (1994).
80. A. L. Cabrera, W. Garrido Molina y U. G. Volkmann; "**Variación de la resistencia en películas delgadas de Co cuando adsorben CO**"; IX. Simposio Chileno de Física, Temuco. Extended abstract published in the proceeding of the Symposium, p.171-172 (1994).
 81. A. L. Cabrera, M. Pino-Leiva y U. G. Volkmann; "**Mediciones de la temperatura de Curie para películas muy delgadas de hierro por un método termogravimétrico**"; IX. Simposio Chileno de Física, Temuco. Extended abstract published in the proceeding of the Symposium, p.87-88 (1994).
 82. U. G. Volkmann and K. Knorr; "**Experimental Study of the Growth Behaviour of Thin Films between Two and Three Dimensions with Visible Light**", Actas IX. Simposio Chileno de Física, Temuco, Chile, p. 68-69 (1994).
 83. U. G. Volkmann, A. L. Cabrera, E. S. Wyndham, R. Zarate y M. Pino; "**Evaporación de metales via PVD (Physical Vapour Deposition)**", V. Chilean Symposium of Experimental and Applied Physics, January 1994, Antofagasta. Abstract published in the proceeding of the Symposium, p.68-69 (1994).
 84. U. G. Volkmann, A. L. Cabrera y W. H. Garrido; "**Caracterización con rayos X de láminas de Ni y Co antes y después de un tratamiento térmico**", V. Chilean Symposium of Experimental and Applied Physics, January 1994, Antofagasta. Abstract published in the proceeding of the Symposium, p.11-15 (1994).

LONG TERM INTERNATIONAL COLLABORATORS:

- **Haskell Taub** (Department of Physics & Astronomy, University Missouri-Columbia, USA).
- **Flemming Y. Hansen** (Department of Chemistry, Technical University of Denmark).
- **Klaus Knorr** (Department of Technical Physics, University of Saarbrücken, Germany).
- **Kristiaan Temst** (Laboratorium voor Vaste-Stoffysica en Magnetisme, K.U. Leuven, Belgium).
- **David Lederman** (Department of Physics, West-Virginia University, USA).
- **Giora Mikenberg** (ATLAS Muon Spectrometer, CERN and Department of Particle Physics, Weizmann Institute).
- **Patrick Huber** (Institute of Materials Physics and Technology, Hamburg University of Technology TUHH).

LONG TERM NATIONAL COLLABORATORS:

- **Alejandro Cabrera** (Institute of Physics, P. Universidad Católica de Chile).
- **Marcela del Pilar Urzúa Acevedo** (Department of Chemistry, Science Faculty, Universidad de Chile).
- **Marco Aurelio Díaz** (Institute of Physics, P. Universidad Católica de Chile).
- **Tomás Perez-Acle** (Computational Biology Lab (DLab) at Fundación Ciencia y Vida and Centro Interdisciplinario de Neurociencias de Valparaíso (CINV) at Universidad de Valparaíso).
- **Tomás P. Corrales** (Departamento de Física at Universidad Técnica Federico Santa María, Valparaíso).

- **Marco A. Soto-Arriaza** (Escuela de Química y Farmacia, Facultad de Medicina y Ciencia, Universidad San Sebastián, Santiago)

NATIONAL COLLABORATORS ON APPLIED TOPICS:

- **Alfonso Otero** (Engineering School, P. Universidad Católica de Chile).
- **PYROS Ingenieros S.A.**, Rangagua.
- **Tecnología Integral S.A.**, Santiago.

PATENTATION:

U.S. Provisional Patent Application (2014):

"Nano-interface for molecular signal transduction" / "Nano-interfaz para la transduccion de senales moleculares".

Inventor(s): U. G. Volkmann, T. Perez-Acle, S. Gutierrez, M. J. Retamal, and M. Cisternas.

U.S. Provisional Patent Application Number: 62/037,027 (August 14, 2014).

Definitive Patent application (2015):

"Interface ultradelgada y autohidratante que comprende un biopolímero hidratante y una bicapa lipídica."

Inventor(s): U. G. Volkmann, T. Perez-Acle, S. Gutierrez, M. J. Retamal, and M. Cisternas.

PCT application number: PCT/CL2015/050033 (August 13, 2015).

RESEARCH FUNDS:

- Co-researcher **Fondecyt 1211901** (2021-2025); "Multiscale Mechanical Properties of Hygroscopic Nanofibers"; PI: Tomas P. Corrales Iturriaga (UTFSM).
- Co-researcher, Project **Conicyt-MPG 190023** (Concurso para Proyectos de Investigación Conjunta CONICYT – Sociedad Max Planck, Convocatoria 2019, Programa de Cooperación Internacional de CONICYT. (2019 - 2023) UTFSM-UC: "Droplet-Probe Force Microscopy on Adaptive Surfaces". PI: Dr. Tomás Corrales, Departamento de Física UTFSM, Valparaiso.
- PI Project **Fondecyt 1180939** (2018-2022); "Protein insertion in artificial membranes deposited from the vapor phase: from biophysical functionality to nanosensor applications"; Co-I's: Marco Antonio Soto Arriaza (UC), Tomas P. Corrales Iturriaga (UTFSM), José Antonio Gárate Chateau (UV).
- Co-researcher **Fondecyt 1180987** (2018-2021); "Molecular mechanisms at the nano-bio interface: applications and biohazards; PI: José Antonio Gárate Chateau (UV).
- Main Researcher Project **Anillo Científico Tecnológico ACT1409** (CONICYT-PIA ACT 1409) "Producción foto-catalítica de hidrógeno a través del ajuste de longitudes de onda del espectro solar a brechas energéticas de foto conductores". 10/2015 – 2018.
- PI Project **Fondecyt 1141105** (2014-2018); "Experimental and theoretical characterization of supported lipid bilayers as biosensor prototypes for applications in nanotechnology"; Co-I: Tomás Pérez-Acle (DLab FCV).
- PI in Chile International Project **DAAD-CONICYT PCCI 044** (TUHH (Huberlab) – UC (SurfLab)); "Estudio de la estructura y termodinámica de una biomembrana artificial con dispersión de rayos x sensibles a la superficie". 2013-2014.

- Researcher Project **Anillo Científico Tecnológico ACT1107** "Integración de la biología estructural al desarrollo de la biotecnología". 10/2012 – 2015.
- Researcher Project **Anillo Científico Tecnológico ACT1102** "Atlas Andino: Física en el LHC y sus aplicaciones". 10/2012 -2015.
- Co-Investigador Proyecto de **Investigación Interdisciplinaria VRI-UC** (2013- 2014): "Contribución de los bioaerosoles al MP2.5 en Santiago, Chile". PI: Prof. Dr. Héctor Jorquera González, Escuela de Ingeniería UC, Departamento de Ingeniería Química y de Bioprocesos.
- PI Project **Fondecyt 1100882** (2010-2014); "Multidisciplinary Studies of Organic Chain Molecules and Biological Membranes onto Solid Surfaces for Applications in Nanotechnology"; Co-I: Tomás Pérez-Acle (DLab FCV).
- Co-Researcher Project *Concurso de Investigación Interdisciplinaria VRI-UC* (2011-2012): "Contribución de los bioaerosoles al MP2.5 en Santiago, Chile". PI: Prof. Dr. Héctor Jorquera González, Engineering School, Chemical Engineering and Bioprocesses, P. Universidad Católica de Chile.
- Co-Researcher Project *Concurso Interdisciplinario VRAID-UC 2008*, "Multidisciplinary studies of biological membranes onto SiO₂ surfaces for applications in Bionanotechnology" (2008-2009).
- PI Project International Cooperation **Fondecyt 7070248 y 7080105** ("Experimental study of the structure, growth, friction, and desorption kinetics of thin organic films adsorbed on solid surfaces").
- PI Project **Fondecyt 1060628** (2006-2009); "Experimental study of the structure, growth, friction, and desorption kinetics of thin organic films adsorbed on solid surfaces".
- Co-Researcher in the project **Fondecyt 1060634** (2006-2009); "Inhibition or enhancement of hydrogen absorption by metal alloy films".
- Project PUC (DIPUC), N° DIPUC 2005/003P
- Researcher in the project **MECESUP PUC 006** (2002-2005).
- Researcher in the project **Fundación Andes**, Grant No. C-13768 (2002 - 2005).
- PI Project **Fondecyt 1010548** (2001-2005). "High-Resolution Ellipsometry on films of long-chain molecules and manoclusters and Magneto-Optical Kerr (SMOKE) measurements on thin magnetic films and nanoparticles".
- PI Project International **Cooperation Fondecyt** (2001-2005). "High-Resolution Ellipsometry on films of long-chain molecules and manoclusters and Magneto-Optical Kerr (SMOKE) measurements on thin magnetic films and nanoparticles".
- Project **NSF-Conicyt** (1997-2001).
- PI Project **Fondecyt 1980586** (1998 - 2001). "Study of atomic layer surface films with ellipsometry".
- PI Project Project **Fondecyt Incentivo a la Cooperación Internacional 7980025** (1998 - 2001). "Study of atomic layer surface films with ellipsometry".
- PI Project **Fondecyt 1940715** (1994 - 1996). "Study of layer growth of thin surface films by optically excited surface plasmons".
- Project PUC (DIPUC), N° DIPUC/307/96.
- Project PUC (DIPUC), N° DIPUC/209/97.

- Co-Researcher in the project **Fundación Andes**, Grant No. C-12776 (1996 - 1998).

ADVISEES:

Graduate students:

- **Sergio Melo Ibarra**, USACH, Licenciatura in Physics (1998).
- **Juan Aguilera Obregón**, Co-thesis adviser (Magister student in the program of M.Cs. & Tec. Madera, UBB (2001)).
- **Guerau Cabrera**, Co-thesis adviser, PUC, Licenciatura in Physics (1st sem. 2003).
- **Pamela Andrea Soza O.**, PUC, Licenciatura in Physics (1st sem. 2003).
- **Valeria del Campo**, PUC, Licenciatura in Physics (1st sem. 2004).
- **Enrique Valderrama**, PUC, Licenciatura in Physics PUC (1st sem. 2004).
- **Edgardo Enrique Ramírez Fuentes**, PUC, Licenciatura in Physics (1st sem. 2005).
- **Tomas Corrales**, PUC, Licenciatura in Physics (2nd sem. 2006).
- **María José Retamal**, PUC, Licenciatura in Physics (1st sem. 2008).
- **Ignacio Vergara**, PUC, Licenciatura in Physics (1st sem. 2009).
- **Marcelo Cisternas**, PUC, Licenciatura in Physics (1st sem. 2010).
- **Claudio Cordero**, PUC, Licenciatura in Physics (1st sem. 2010).
- **Pía Homm**, PUC, Licenciatura in Physics (2nd sem. 2010).
- **Karina López**, PUC, Licenciatura in Physics (1st sem. 2011).
- **Rosario Ortega**, PUC, Licenciatura in Physics (1st sem. 2011).
- **Mauricio Sarabia**, PUC, Licenciatura in Physics (1st sem. 2012).
- **Nicolas Moraga**, PUC, Licenciatura in Physics (1st sem. 2015).
- **Diego Diaz**, PUC, Licenciatura in Physics (1st sem. 2015).
- **Rodrigo Catalán**, PUC, Licenciatura in Physics (2nd sem. 2015).
- **Vanessa Zepeda Capdevilla**, PUC, (1st sem. 2016).
- **Sebastian Molina Riveros**, PUC (2nd sem. 2018).
- **Francisca Palacios Coddou**, PUC (1st sem. 2019).
- **Hugo Zelada**, PUC (2nd sem. 2019).
- **Nancy Catalina Gomez Vierling**, PUC (1st sem. 2020).
- **Gabriel Alfaro Muñoz**, PUC (1st sem. 2021).
- **Lucas Córdova Hernández**, PUC (1st sem. 2022).
- **Daniel Saavedra Torres**, PUC (1st sem. 2022).

Master students:

- **Tomas Corrales**, PUC (from 1/2008 to (**received**) 3/2009).
Actually Professor at the UTFSM in Valparaiso.
- **Carlos Calle**, PUC (from 1/2009 to (received) 3/2011), together with Dr. Gastón Martínez from *Tecnología Integral S.A.* Carlos Calle worked on the design and development of an intelligent optical sensor for

measurement of temperature profiles inside of industrial oven e.g. cal and cement). For this sensor, called *PyroSpec*, **Tecnología Integral S.A.** received from the *ASOCIACIÓN DE LA INDUSTRIA ELÉCTRICA-ELECTRÓNICA CHILE* the annual price **Premio Mejor Innovación Tecnológica AIE 2010**.

Actually at Tecnología Integral S.A., Chile.

- **Gonzalo Ricardo Leal**, Co-adviser, together with professor Marco Aurelio Diaz, PUC (from 1/2012 to (received) 4/2013).
- **Marcelo Cisternas**, PUC (from 2nd semester 2012 to (received) 6/2015).
- **Nicolas Moraga**, PUC, (from 2nd semester 2015 to (received) 1/2020).
- **Diego Diaz**, PUC, (from 2nd semester 2015 to (received) 12/2017).
- **Rodrigo Catalán**, PUC, (from 1st semester 2016 to (received) 6/2018).

Doctorial / Ph.D. students:

- **Edgardo A. Cisternas** (from 2005 to (received) 4/2009).
Actually Research & Development Manager at Molymet S.A., Chile.
- **Pamela A. Soza** (from 2/2004); experimental part of her Ph.D. thesis (the complementary part of Molecular Dynamics Simulations was supervised by M. Kiwi and F. Hansen; received 5/2009).
Actually School-Teacher in Germany.
- **Valeria del Campo** (from 1/2007 to (received) 5/2009).
Actually researcher and professor at the UTFSM / USM, Valparaiso, Chile.
- **María José Retamal** (from 2010 to (received) 10/2014).
Actually professor at the Engineering Faculty of UFT, Santiago Chile.
- **Marcelo Cisternas**, PUC (from 2nd semester 2015 to (received) 06/2021).
Actually professor at the Engineering School of University of Valparaiso, Chile.
- **Nicolas Moraga**, PUC (from 2nd semester 2019 to present).
- **Nancy Catalina Gomez Vierling**, PUC (from 1st semester 2021 to present).
- **Daniel Saavedra Torres**, PUC (from 1st semester 2023 to present).

Post-docs:

- **Raphael Matelon**: Ph.D. in Physics (in collaboration with Prof. Alejandro L. Cabrera, March 2003 to March 2005);
Actually at the Engineering School at the University of Exeter, UK.
- Carmen González; Dra. in Chemistry (U de Chile); April 2011 to August 2012.
- **María José Retamal** (from 11/2014 - 12/2019).

INSTRUCTION AND ADVISEES OF STUDENTS IN ACTUAL RESEARCH:

- **Per Nostell** (1993/94); Thesis student; Interchange with University Upsala, Sweden.
- **Michela Cuomo** (Magister student Physics Faculty 8/1998 – 11/1998); VHRE.
- **Roxana Contreras** (Student of the Advanced Physics Lab. (VHRE); sem. 2/1999).
- **Marcelo Mora** (Student of the Advanced Physics Lab. (VHRE); sem. 2/1999).
- **Patricio Lagos** (Student of the Advanced Physics Lab. (VHRE); sem. 2/1999).

- **Francisco Castillo** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2000).
- **Joaquín Mura** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2000).
- **Sebastian Caballero** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2000).
- **Sebastian Mendizabal** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2000).
- **Elisabeth Kierig** (9/2000–12/2000); Interchange student Universität Heidelberg, Germany; MOKE and VHRE.
- **Jonathan Avila** (during January 2001); Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); MOKE and VHRE.
- **Roberto Lineros** (Student of the Advanced Physics Lab. (VHRE); sem. 1/2001).
- **Felipe Veloso** (Student of the Advanced Physics Lab. (VHRE); sem. 1/2001).
- **Samuel Baltasar** (Student of the Advanced Physics Lab. (VHRE); sem. 1/2001).
- **Javier Jiménez** (Student of the Advanced Physics Lab. (VHRE); sem. 1/2001).
- **Jorge Gómez** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2001).
- **Felipe Muñoz** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2001).
- **Jorge Pinochet** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2001).
- **Maximiliano Rivera** (Student of the Advanced Physics Lab. (VHRE); sem. 2/2001).
- **Marius Schaefer** (Student of the Advanced Physics Lab. (MOKE); sem. 1/2002).
- **Guerau Cabrera** (Student of the Advanced Physics Lab. (MOKE); sem. 1/2002).
- **Francisco Pacheco Rivera** (Student of the Adv. Physics Lab. (MOKE); sem. 2/2002).
- **Pamela Soza Ossandon** (Student of the Adv. Physics Lab. (MOKE); sem. 2/2002).
- **Cesar Hidalgo Ramaciotti** (Student of the Adv. Physics Lab. (MOKE); sem. 2/2002).
- **Edgardo Alfonso Cisternas Jara** (during January 2002 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); MOKE.
- **Enrique Valderama** (September 2001 to December 2002); voluntary student of the course MOKE and VHRE.
- **Valeria del Campo** (during January 2003 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); VHRE.
- Postdegree "Practica Avanzada de Laboratorio", Ph.D. student **Edgardo Cisternas**, PUC, (first semester 2004).
- Postdegree "Practica Avanzada de Laboratorio", Ph.D. student **Pamela Soza**, PUC, (second semester 2004).
- **Loreto Oyarte Gálvez** (during January 2004 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); MOKE.
- **Maritza Hernandez Gaete** (during January 2005 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); AFM.
- **Ignacio Espinoza Bornscheuer** (during January 2005 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); VHRE.
- **Gabriela Miranda Holley** (during January 2005 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); MOKE.
- **Héctor Martínez Neira** (during January 2006 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); Surfactants.
- **Edgardo Dorner Yaksic** (during January 2006 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); MOKE.
- **Carlos Andres Calle Gil** (from April 5 to April 19, 2006; research visitor; postdegree (Magister) student of the Universidad del Quindío, Armenia, Colombia); VHRE.
- **Stefan Keßler** (March 2006 to July 2006); interchange student from the Universität Heidelberg, Germany; VHRE.

- **Ignacio Vergara Kausel** (during January 2007 Student of the intense summer course program; regular student of the Physics Faculty of the P. Universidad Católica de Chile); VHRE; and from 03/2007 to present as a member of the technical support staff for Fondecyt project 1060628.
- **Benedikt Justen** (March 2007 to November 2007); interchange student from the Universität Berlin, Germany. AFM / Software.
- **Pía Homm Jara** (since 2008; summer course 2009 and project student).
- **Piero Antonio Ferrari Ramirez** (since 2008; project student).
- **Fabián Andrés Olivares Legal** (since 2008; summer course 2009 and project student).
- **Pablo Andrés Morales Rodríguez** (since 2008; summer course 2009 and project student).
- **Mauricio Sarabia** (2011; project student).
- **Manuel Alamo Ulloa** (summer course 2012 student of postdoc Carmen González).
- **Belén Céspedes Parada** (summer course 2012 student).
- **Renate Reisenegger** (summer course 2013 student).
- **Ari Orlando Ortiz Moreno** (VRI summer course 2014 student).
- **Bruno Emilio Marcenaro Villouta** (VRI summer course 2014 student).
- **Vanessa Zapeda Capdevilla** (VRI winter course 2014 student).
- **Marcela Guerra** (IF summer course 2015 student).
- **Sebastian Molina** (IF summer course 2015 student).
- **Isidora Sepulveda** (VRI summer course 2015 student).
- **Vanessa Zapeda Capdevilla** (IF summer course 2015 student).
- **Camila Gloria Chamorro Ortega** (IF summer course 2017 student).
- **Sebastián Andrés Urrejola Barrios** (IF summer course 2017 student).
- **Sebastian Andres Molina Riveros** ((IF summer course 2018 student).
- **Nancy Catalina Gomez Vierling** (IF summer course 2020 student).
- **Lucas Cordova Hernández** (IF summer course 2020 student).
- **Gabriel Alfaro Muñoz** (IF summer course 2020 student).
- **Jonas Darius Fortmann** (Master Student Energy and Materials Physics at Institute of Energy Research and Physical Technologies, Technical University Clausthal; International Interchange / Research Internship 10/2018 – 1/2019).
- **Felix Kleemann** (Master Student Energy and Materials Physics at Institute of Energy Research and Physical Technologies, Technical University Clausthal; International Interchange / Research Internship 10/2021 – 2/2022).

OTHER RELEVANT ACTIVITIES AT THE PHYSICS FACULTY OF THE P. UNIVERSIDAD CATÓLICA DE CHILE:

Transfer of a Nitrogen Liquifier plant (Philips) from the Universität Saarbrücken (donator) to our Faculty: Installation (1995) and permanent service (1995 to present) of this thermodynamic plant for air liquefaction and nitrogen distillation; this facility provides since 1995 liquid Nitrogen for our research laboratories and for other faculties of the P. Universidad Católica de Chile and interested companies. Production: about 4,5L/hr; 24 hrs/day, average 21 days/month.

Together with former Ph.D.-student Ramon Antonio Zarate: Design and fabrication of a Flash Evaporation System for deposition of thin dielectric (BaTiO₃)-films, multiple sets of capacitors and “Saywer-Tower” circuit for measurement of the dielectric properties of thin (BaTiO₃)-films.

Design and construction / fabrication of high level experimental equipment for thin film fabrication and analysis (Very high resolution ellipsometer VHRE with support of Universität Saarbrücken, FONDECYT and

FUNDACION ANDES; AC-Kerr and DC-Kerr (MOKE) with financial support of FONDECYT. Adaption of Electron beam evaporator for thin film preparation to Edwards Auto 308 PVD evaporator with financial support from FUNDACION ANDES; adaption of commercial Imaging Ellipsometer (Optrel GBR, Germany) to existing VHRE with financial support of FONDECYT.

EXTERNAL ACTIVITIES:

Referee for international journal “Langmuir”.

Referee for research projects (CONICYT, UTFSM).

Support to German Embassy and coordination (Physics Faculty PUC, Math Faculty PUC, Engineer School PUC) for exhibition “Matemática, Realidad y Estética; Microchips y Arte Moderno” of the Friedrich Wilhelm Universität in Bonn, Institut für Diskrete Mathematik / Instituto de Matemática Discreta and Museo Nacional de Bellas Artes (9.11.1995– 14.1.1996).

1997-2006: Seminar talks at the Department of Physics & Astronomy of the University Missouri-Columbia, Columbia, USA.

1997-2003: Research visits / diffraction experiments scheduled at Missouri University Research Reactor MURR, Argonne National Laboratory ANL and Brookhaven National Laboratory BNL, USA.

2001-2004: Research visits at Technical Physics Institute, University Saarbrücken, Germany; Solid State and Magnetic Material Group at Catholic University Leuven, Belgium; Danish Technical University, Lyngby, Denmark.

2006: Member of Organizing Committee of “1er Taller Nacional de Nanotecnología 25, 26, 27 de Mayo 2006 Viña del Mar – Chile”.

2009: Member of Scientific Committee of “1er Congreso Nacional de Nanotecnología 24, 25, 26 de Mayo 2009 Valparaiso – Chile”.

3/2011 to 3/2014: Member of the research reviewer group “Grupo de Estudio Physics and Astronomy” for the national Chilean research founding agency CONICYT.

2012-2014: Member of the Steering and Program Committee of “Pacific Rim Symposium on Surfaces, Coatings and Interfaces (PacSurf 2014)”, December 7 - 11, 2014. Big Island of Hawaii, USA.

2014: Member of Scientific Committee for “XIX Simposio Chileno de Física 2014”, November 26 – 28, 2014, Concepcion, Chile.

2014: Member of the FONDEQUIP evaluation panel at CONICYT.

2015: Member of the FONDEF IDEA Bietapas evaluation panel at CONICYT.

HONORS:

- Invitation by the Federal Minister of Education and Research **BMBF** of Germany to visit Excellence Research and Development Centers in Nanoscience and Nanotechnology and Nanotechnology Companies in Bremen, Hannover, Würzburg, Saarbrücken and Frankfurt/M, as one of two Chilean representatives from the area of Nanoscience and Nanotechnology (together with Prof. Dr. Jans Humberto Alzate Morales from University of Talca). April 18 to 25, 2009.

- 1st semester 1996: Inclusion in "Lista de Honor de Profesores" (“Teachers Honor Roll”) of the Engineering School at PUC (for outstanding teaching / lectures for students of the Engineering School).

Additional information / Informacion adicional:

[http:// www.fis.puc.cl/~surflab](http://www.fis.puc.cl/~surflab)

<https://orcid.org/0000-0003-4972-5558>