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Curriculum Vitae
(short version)

BIOGRAPHICAL SKETCH – CURRICULUM VITAE

ULRICH GEORG VOLKMANN

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EDUCATION

- Justus-Liebig-Universität, Gießen, Germany: Physics Studies (1978-1981)

- Johannes Gutenberg-Universität, Mainz, Germany: Diplom-Physiker (Master, 1985)

- Johannes Gutenberg-Universität, Mainz, Germany: Ph.D. in Physics (Dr. rer. nat., 1991)

Advisor: Prof. Dr. Klaus Knorr | Complementary Specialty: Nuclear Chemistry

EMPLOYMENT HISTORY

- Pontificia Universidad Católica de Chile: Full Professor (2006 – present)

- Pontificia Universidad Católica de Chile: Associate Professor (1993 – 2006)

- Universidad de Chile: Professor and Research Scientist (1992 – 1993)

- University Mainz: Scientific Assistant, Sonder-Forschungs-Bereich SFB 62 (1991 – 1992)

RESEARCH INTERESTS

- Sustainable energy technologies and life sciences: Photocatalytic surfaces, lipid bilayers.

- Collaboration: Plasma Physics group UC, *BlueMat* network TUHH (Prof. Dr. Patrick Huber).

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EXPERIMENTAL EXPERTISE

Core Techniques:

- Atomic Force Microscopy, Imaging Ellipsometry, Magneto Optical Kerr Effect (MOKE), Thin Film Deposition (PVD of Metals and Organic Materials, Sputter Coating, Velocity Controlled Dip-coating, Spin-coating).

Cryogenic and Surface Analysis:

- UHV systems, XRD, TEM, AFM, Thermally Activated Laser Desorption.

Collaborative Facilities:

- Synchrotron Radiation Sources, Nuclear Reactors, and advanced measurement systems.

TEACHING EXPERIENCE

- Physics courses and lab instruction at Johannes Gutenberg-Universität, Universidad de Chile, and Pontificia Universidad Católica de Chile.

- Supervision: Undergraduate, Master's, and Ph.D. students.

PUBLICATIONS & CONFERENCES

- 60+ peer-reviewed international journal articles.

- Numerous international conference presentations, including APS, DPG, and Biophysical Society meetings.

SERVICE

- Member of the Doctoral Faculties *(claustro)* in Physics and in Engineering Sciences at Pontificia Universidad Católica de Chile.

- Active participant in academic committees and university initiatives.

Stand: 11/November/2024

BIOGRAPHICAL SKETCH – CURRICULUM VITAE
(**Extended Version**)

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EDUCATION

- **Physics Studies**: Justus-Liebig-Universität, Gießen, Germany (1978-1981)
- **Master / Diplom-Physiker (Dipl.-Phys.)**: Johannes Gutenberg-Universität, Mainz, Germany (1985)
- **Ph.D. (Dr. rer. nat.) in Physics**: Johannes Gutenberg-Universität, Mainz, Germany (1991)
  Ph.D. Advisor: Prof. Dr. Klaus Knorr
- **Complementary Specialty (*Nebenfach*)**: Nuclear Chemistry/Radio Chemistry
  Advisor: Prof. Dr. Günther Herrmann
  Practical work at the Research Reactor, University Mainz, Germany

EMPLOYMENT HISTORY

- Full Professor (Profesor Titular): Pontificia Universidad Católica de Chile, IFIS UC & CIEN-UC (2006 – present)
- Associate Professor (Profesor Adjunto): Pontificia Universidad Católica de Chile (1993 – 2006)
- Professor/Research Scientist: Univ. de Chile, Santiago (1992 – 1993)
- Scientific Assistant: Sonder-Forschungs-Bereich SFB 62, University Mainz (1991 – 1992)

RESEARCH INTERESTS: Integrating Advanced Catalytic Materials and Biomimetic Systems for Sustainable Energy and Life Sciences

At **SurfLab IFIS UC**, under the leadership of Professor Dr. rer. nat. Ulrich G. Volkmann, we explore the intersection of sustainable energy technologies and life sciences through two complementary research pillars: the development of **photocatalytic and electrocatalytic surfaces for green hydrogen production and the solvent-free fabrication of supported lipid bilayers (SLBs)** for biosensors and astrobiological studies.

1. Green Hydrogen Production Using Chilean Metals and Advanced Catalysts

Based on our previous Anillo-ACT 1409 project at IFIS UC, we focus at SurfLab on innovating photocatalytic surfaces and electrodes to drive the hydrogen economy forward. By integrating established materials like **TiO_2,**

MoS_2, and carbon quantum dots (CDs) with **locally sourced metals and metal oxides from Chile**, including **rhenium (Re)**, we aim to contribute to the development of efficient, cost-effective systems for both **direct photocatalytic water splitting** and **traditional electrolysis**. Our work employs, in collaboration with the Plasma Physics group at IFIS UC, cutting-edge fabrication techniques such as:

- **Plasma Enhanced Pulsed Laser Deposition (PE-PLD)** for precision Re coatings.
- **Electrodeposition and Sputter Coating** for high-adhesion catalytic surfaces.
- **Dip- and Spin-Coating with Pulsed Laser Heating** for robust, nano-engineered structures.

These innovations not only enhance hydrogen production efficiency but also position Chile as a global leader in renewable energy technologies.

2. Solvent-Free Biomimetic Platforms for Biosensors and Astrobiology

Parallel to our energy research, we are pioneering **solvent-free fabrication of SLBs** using **physical vapor deposition (PVD)**. This dry process creates highly stable lipid bilayers directly on silicon or titanium-coated substrates, forming robust platforms for biosensing and biomimetic applications. The resulting SLBs mimic biological membranes, enabling studies of **membrane-protein interactions** and providing a unique opportunity to investigate the **long-term viability of lipid-based structures** under extreme conditions, a critical inquiry in astrobiology.

A Shared Vision: Stability, Efficiency, and Sustainability

Both research areas converge on the theme of **stability and efficiency** in complex systems. The **dry SLB platform** mirrors our work in hydrogen production by demonstrating how **advanced materials and precise fabrication** can yield durable, high-performance systems. Just as we seek to optimize catalytic surfaces for sustainable energy, our SLB research provides insights into the resilience of biomimetic structures—informing biosensor development and supporting experimental inquiries into the **origins of life**.

Through interdisciplinary collaborations, including partnerships with **Prof. Dr. Patrick Huber's "BlueMat" network**, SurfLab aims to address global challenges in **renewable energy and life sciences**, pushing the boundaries of what is possible in both fields. Together, these efforts contribute to a more sustainable and scientifically enlightened future.

EXPERIMENTAL EXPERTISE AT SURFLAB:

At **SurfLab**, within the Physics Institute IFIS of UC, we specialize in the **development, customization, and adaptation of experimental equipment** for research in **condensed matter physics**, encompassing both **fundamental and applied physics**. Our expertise spans a wide array of cutting-edge techniques and custom-built tools for exploring material properties and surface interactions:

Core Experimental Techniques and Custom Equipment:

- **Atomic Force Microscopy (AFM)** for nanoscale surface characterization.
- **Photon Interaction Studies with Thin Films**: Investigating optical and electronic properties.
- **Imaging Ellipsometry (IE) & Very High Resolution Ellipsometry (VHRE)**: Precision analysis of surface film thickness and refractive indices.
- **Magnetometry**: Studies of thin magnetic films and magnetic superlattices via **AC and DC Magneto-Optical Kerr Effect (MOKE)**.
- **Contact Angle Measurements**: Analyzing wetting properties, surface tension, and structural phase transitions in bulk materials and thin films.

Research Areas:

- **Critical Phenomena and Phase Transitions**:
  - Structural relaxation at glass transitions.
  - Elastic properties of amorphous and crystalline materials.
  - Wetting transitions, surface freezing, and interfacial ordering.
  - Epitaxial growth, growth kinetics, and thermodynamic modeling of surface films.
- **Thin Film and Interface Studies**:
  - Roughness, adhesion, and anchoring in monoatomic and molecular films.
  - Optical activity and phase behavior in hydrogen-charged Pd films.
  - Experimental lattice gas systems and quadrupolar dynamics in complex materials.
- **Advanced Optical Studies**:
  - Optical propagation in multibarrier systems.
  - Synchrotron X-ray diffraction for thin film analysis (MATRIX at NSLS, Brookhaven).
  - Quasielastic Neutron Scattering (QENS) for dynamic studies at IPNS (ANL, USA).

Sample Preparation and Characterization Techniques:

- **Thin Film Deposition**:
  - Physical Vapor Deposition (PVD), Flash Evaporation, Sputter Coating.
  - Velocity-controlled Dip-Coating and Spin-Coating for uniform thin films.
  - Electrochemical methods for porous silicon (pSi).
- **Cryogenic Techniques**:
  - Ultra-high vacuum (UHV) systems integrated with cryogenic capabilities (liquid helium, liquid nitrogen, closed-cycle refrigerators).
  - Custom-designed superisolated **liquid helium cryostats** for precise temperature control.
- **Surface and Interface Analysis**:
  - Surface cleaning via Nd:YAG and Ruby lasers.
  - X-ray Powder Diffraction (XRD), Transmission Electron Microscopy (TEM).
  - Thermally activated laser desorption and mass spectrometry.

Collaborative and Specialized Capabilities:

- Access to state-of-the-art facilities, including **synchrotron radiation sources** and **nuclear reactors** (Mainz and MURR, Columbia and DESY, Hamburg) for advanced material studies.
- Expertise in **computer-aided measurement and control systems** for automated, high-precision data collection.
- Elastic and dielectric constant measurements for materials under extreme conditions.
- **Quasi-static and dynamic studies** of magnetization in low-temperature superconductors (LTC).

Through our extensive in-house capabilities and international collaborations, SurfLab excels in tackling complex challenges in materials science, surface physics, and nanotechnology, contributing to innovations in both fundamental research and practical applications.

WIDER CONTEXT / Key Words:

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 (pSi), 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.

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 undergraduate / graduate physics to students in the Physics & Astronomy, Engineering, Chemistry, Biology, Agriculture and Construction Faculties, as well as post degree courses on specific topics related to experimental condensed matter physics and related experimental techniques.

PUBLICATIONS IN INTERNATIONAL JOURNALS:

1. **"Multiple-reflections single-shot dispersion scan for fast ultrashort-pulse measurements"**, Francisco Capdeville, Fernando Villanueva, Diego Hidalgo-Rojas, Faustino Wahaia, Robert Wheatley, Sascha Wallentowitz, Ulrich Volkmann, Birger Seifert. Optics Express 32 (16), 28742-28752 (2024). DOI: 10.1364/OE.529440 . URL: https://doi.org/10.1364/OE.529440

2. **"Wrinkled TiNAgNW Nanocomposites for High-Performance Flexible Electrodes on TEMPO-Oxidized Nanocellulose",** Loïk Gence, Franck Quero, Miguel Escalona, Robert Wheatley, Birger Seifert, Donovan Diaz-Droguett, María José Retamal, Sascha Wallentowitz, Ulrich Georg Volkmann and Heman Bhuyan. Nanomaterials 14, 1178-1192 (2024). DOI: 10.3390/nano14141178

3. **"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

4. **"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 .

5. **"Structural, optoelectronic and photo-thermoelectric properties of crystalline alloy $CuAl_xFe_{1-x}O_2$ 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

6. **"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

7. **"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

8. "**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.

9. "**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

10. "**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.

11. "**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.

12. "**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.

13. "**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

14. "**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

15. "**Spontaneous Formation of Nanopatterns in Velocity-Dependent Dip-Coated Organic Films: From Dragonflies to Stripes**", Tomas P. Corrales, Mengjun Bai, Valeria del Campo, Pia Homm, 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

16. "**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.

17. **"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

18. "**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).

19. "**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).

20. "**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)

21. "**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).

22. "**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).

23. "**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).

24. "**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).

25. "**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).

26. "**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).

27. **"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).

28. **"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).

29. "**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).

30. "**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).

31. "**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).

32. "**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).

33. "**Nanoscale Observation of Delayering 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).

34. "**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

35. "**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).

36. "**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.*

37. "**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).

38. "**Magnetooptic 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).

39. "**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).

40. "**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).

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Neumann, and U. G. Volkmann. "Slow Dynamics in Complex Systems", Sendai, Japan, 3-8 November 2003. AIP Conference Proceedings **708**, 201-204 (2004).

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CONTRIBUTIONS TO **INTERNATIONAL** CONFERENCES AND MEETINGS:

1. **Nancy Gomez-Vierling**, Daniel Saavedra, Marco Soto-Arriaza, Marcelo A. Cisternas, Nicolás Moraga, Tomás P. Corrales, and Ulrich G. Volkmann. **"Formation of supported artificial Membranes of Lipid Raft Models by Physical Vapor Deposition"**. DPG March Meeting, March 17-22, 2024, Berlin, Germany.
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2. **Nicolás Moraga**, Daniel Saavedra, Nancy Gomez-Vierling, Marcelo A. Cisternas, María José José Retamal, and **Ulrich G. Volkmann**. **"Application of Homogenization Techniques to Gas-Phase Deposited DPPC Films on Silicon Substrates: Unveiling Phase Transitions in Dry Environments of DPPC Bilayers"**. DPG March Meeting, March 17-22, 2024, Berlin, Germany. https://www.dpg-verhandlungen.de/year/2024/conference/berlin/part/bp/session/16/contribution/10

3. **Heman Bhuyan**, **Rodrigo Villegas**, Valentina Ureta, Miguel Escalona, Maria Jose Retamal, Maria Jose Inestroza, José Ignacio Fernández, Loïk Gence, Ulrich G. Volkmann, and Yayoi Takamura. **"Plasma enhanced pulsed laser deposition of metal nitride and oxide thin films Dual radio frequency plasma enhanced pulsed laser deposition of metal nitride and oxide thin films"**. DPG March Meeting, March 17-22, 2024, Berlin, Germany. https://www.dpg-verhandlungen.de/year/2024/conference/berlin/part/ds/session/20/contribution/23

4. **Daniel Saavedra**, Marcelo A. Cisternas, Donovan E. Diaz-Droguett, and **Ulrich G. Volkmann**. **"Fluorescence Carbon dots (CQDs) produced via hydrothermal carbonization incorporated in Graphene Oxide layers"**. DPG March Meeting, March 17-22, 2024, Berlin, Germany. https://www.dpg-verhandlungen.de/year/2024/conference/berlin/part/o/session/33/contribution/4

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7. **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

8. **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.

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12. **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.**

13. 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.

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**. **"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.

15. 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.

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17. 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 $CuFeO_2$, $CuMO_2$ and $CuFe_xM_{1-x}O_2$ Delafossite Porous Surfaces"**. DPG March Meeting, March 31- April 5, 2019, Regensburg, Germany.

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22. **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.

23. 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 microscopt (AFM) study of elastic modulus of artificial phospholipid membranes"**. American Physical Society (APS) March Meeting, March 5-9, 2018, Los Angeles, California, USA.

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31. U.G. Volkmann, D. Diaz, M.J. Retamal, M. Cistemas, 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.

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37. 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

38. 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

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49. 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.

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52. 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.

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55. 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.

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57. 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.

58. 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.

59. 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. 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.

65. 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.

66. M. A. Cisternas, V. del Campo, A. L. Cabrera, U. G. Volkmann, F. Y. Hansen, H. Taub, **"Thermal Programmed Desorption of $C_{32}H_{66}$"**; Presented at the APS March Meeting, March 21 – 25, 2011, Dallas, Texas.

67. S. Gutiérrez, R. Araya-Secchi, M. J. Retamal, U. G. Volkmann, T. Perez-Acle, **"Molecular Dynamics Simulations of Dotriacontane films supported on a SiO_2 surface"**; Presented at the APS March Meeting, March 21 – 25, 2011, Dallas, Texas.

68. 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.

69. 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.

70. 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.

71. 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

72. 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.

73. 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.

74. 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.

75. 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

76. 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

77. 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

78. 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.

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81. 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.
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82. 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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84. 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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85. E.A. Cisternas, T. Corrales, V. del Campo, U.G. Volkmann, H. Taub, and F.Y. Hansen: **"Comparison of the Wetting Behavior of Dotriacontane Films Adsorbed on SiO2 Surfaces by Physical Vapor Deposition with that of Films Dip-coated in Solution".** Presented at the APS Meeting, March 5-9, 2007 Denver, Colorado, USA.
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86. F.Y. Hansen, P. Soza, A. Diama, H. Taub, and U.G. Volkmann: **"Studies of dynamical layering in adsorbed alkane films by molecular dynamics simulations and quasielastic neutron scattering"**. Presented at the APS Meeting, March 5-9, 2007 Denver, Colorado, USA.
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87. H. Taub, M. Bai, A. Diama, K. Knorr, U.G. Volkmann, and F.Y. Hansen: **"Delayering of Intermediate-Length Alkanes Adsorbed on Solid Surfaces".** Presented at the APS Meeting, March 5-9, 2007 Denver, Colorado, USA.
http://meetings.aps.org/Meeting/MAR07/Event/60108

88. M. Bai, H. Taub, K. Knorr, U.G. Volkmann, and F.Y. Hansen: **"Contact Angle Measurements by AFM on Droplets of Intermediate-Length Alkanes Adsorbed on SiO2 Surfaces"**. Presented at the APS Meeting, March 5-9, 2007 Denver, Colorado, USA.
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89. Jonathan Avila, Alejandro Cabrera, Mario Favre, Ulrich Volkmann, Jorge Espinosa, and David Lederman: **"Optical Properties of Pd and PdO films exposed to hydrogen"**. Presented at the APS Meeting, March 5-9, 2007 Denver, Colorado, USA.
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90. 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.

91. Edgardo Cisternas, Ulrich G. Volkmann, Valeria del Campo, Haskell Taub, and Flemming Hansen: **"Wetting Behaviour and Morphology of Dotriacontane Films on SiO2/Si Surfaces Prepared by PVD in High Vacuum and by Dip-coating From Solution"**. 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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93. P. Soza, E. Cisternas, U.G. Volkmann, H. Taub, and F.Y. Hansen: **"Study of the substrate dependence on the structure and growth of dotriacontane films"**. Presented at the 13th International Conference on Solid Films and Surfaces (ICSFS-13), November 6-10, 2006, San Carlos de Bariloche, Argentina.

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95. E. Cisternas, U.G. Volkmann, V. del Campo, H. Taub, and F.Y. Hansen: **"Wetting behaviour and morphology of dotriacontane films on SiO2/Si surfaces prepared by PVD in high vacuum and by dip-coating from solution"**. Presented at the 13th International Conference on Solid Films and Surfaces (ICSFS-13), November 6-10, 2006, San Carlos de Bariloche, Argentina.

96. P. Soza, V. del Campo, E. Cisternas, M. Pino, U.G. Volkmann (P. U. Católica de Chile), H. Taub (U. Mo.-Columbia), and F.Y. Hansen (Tech. U. Denmark): "**Ellipsometric Measurements of Dotriacontane Films Adsorbed on Au(111) Surfaces**". Presented at the APS Meeting, March 13 - 17, 2006 Baltimore, Maryland, USA. http://meetings.aps.org/Meeting/MAR06/Event/45267

97. E. Cisternas, P. Soza, V. del Campo, E. Ramirez, U.G. Volkmann (P. U. Católica de Chile), H. Taub (U. Mo.-Columbia), and F.Y. Hansen (Tech. U. Denmark): "**Comparison of Thickness and Morphology of Dotriacontane Films on SiO2/Si Surfaces Vapor-deposited in High Vacuum with those Deposited from Solution**". Presented at the APS Meeting, March 13 - 17, 2006 Baltimore, Maryland, USA.
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98. 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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99. Mengjun Bai, Klaus Knorr, Matthew Simpson, Sven Trogisch, Haskell Taub (U. Mo.-Columbia), Ulrich Volkmann (P. U. Católica de Chile), and Flemming Hansen (Tech. U. Denmark): "**Nanoscale Observation of Alkane Dewetting**". Presented at the APS Meeting, March 13 - 17, 2006 Baltimore, Maryland, USA.
http://meetings.aps.org/Meeting/MAR06/Event/45266

100. J.I. Avila, M. Favre, U.G. Volkmann, A.L. Cabrera (P. U. Católica de Chile), and D. Lederman (West-Virginia University, USA): "**Optical Spectroscopy of PdO and Pd thin Films under hydrogen exposure**". Presented at the APS Meeting, March 13 - 17, 2006 Baltimore, Maryland, USA.
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102. A. Diama, M. Simpson, H. Taub (U. Mo.-Columbia), F.Y. Hansen (Tech. U. Denmark), R. Dimeo, D. Neumann (NIST), K.W. Herwig (ORNL), U.G. Volkmann (P. U. Católica de Chile): "**Studies of Dynamical Layering in Adsorbed Organic Films**". Presented at the APS Meeting, March 21 - 25, 2005 Los Angeles, California, USA.
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105. 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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106. R. J. Matelon, U. G. Volkmann, A. L. Cabrera (Pontificia Universidad Católica de Chile), E. H. Morales, Y. Wang, D. Lederman (Dept. of Physics, West Virginia University): "**The optical response of thin Pd films in a hydrogen atmosphere**". Presented at the APS Meeting, March 22 - 26, 2004 Montreal, Quebec, Canada.
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108. F. Y. Hansen, H. Taub, H. Mo (U. Mo.-Columbia), U. G. Volkmann (P. U. Catolica Chile): "**Molecular Dynamics Simulations of the Structure of Multilayer Films of Intermediate-length Alkane Molecules Adsorbed on a Solid Surface**". Presented at the APS Meeting, March 22 - 26, 2004 Montreal, Quebec, Canada.
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109. P. Soza, V. Del Campo, U. G. Volkmann, M. Pino (P, U. Catolica Chile), H. Mo, H. Taub (U. Mo.-Columbia), F. Y. Hansen (Tech. U. Denmark): "**Study of Octacosane and Triacontane Films by High-Resolution Ellipsometry**". Presented at the APS Meeting, March 22 - 26, 2004 Montreal, Quebec, Canada.
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http://www.dfi.uchile.cl/surface/english/program.htm.
PDF download: http://www.dfi.uchile.cl/surface/pdf/162.pdf

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114. F. Y. Hansen (Technical University of Denmark), H. Taub (University of Missouri-Columbia), U. G. Volkmann (Pontificia Universidad Católica de Chile): "**Molecular Dynamics Simulations of the 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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115. H. Mo, S. Trogisch, H. Taub (University of Missouri-Columbia), S.N. Ehrlich (Brookhaven National Laboratory), U. G. Volkmann, M. Pino (Pontificia Universidad Católica de Chile), F. Y. Hansen (Technical University of Denmark): "**Study of Dotriacontane Films by Synchrotron X-ray Specular Reflectivity**". Presented at Congreso Latinoamericano de Ciencias de Superficies y sus Aplicaciones (CLACSA 2003), Pucón, Chile, December 7-12, 2003.
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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:

- PI Project **Puente-2024-25 UC** (2024-2025); "Carbon-dot enhanced nanostructured surfaces for ultra-green hydrogen production".

- 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 SiO_2 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

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- 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".

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- Project **NSF-Conicyt** (1997-2001).

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

Research proposals currently under review (November 2024)**:**

- Director, Proposal ID: 714917, Concurso IDeA I+D 2025 – SIA, "Development and validation of rhenium and molybdenum based thin films as a sustainable and efficient alternative for electrocatalysts", submitted September 2024.

- PI, Proposal ID: 694981, Concurso FONDECYT Regular 2025 – FONDECYT; "Air-Based Production of Ultra Green Hydrogen", submitted July 2024.

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- **Vanessa Zepeda Capdevilla,** PUC, Licenciatura in Physics (1st sem. 2016).
- **Sebastian Molina Riveros**, PUC, Licenciatura in Physics (2nd sem. 2018).
- **Francisca Palacios Coddou**, PUC, Licenciatura in Physics (1st sem. 2019).
- **Hugo Zelada**, PUC, Licenciatura in Physics (2nd sem. 2019).
- **Nancy Catalina Gomez Vierling**, PUC, Licenciatura in Physics (1st sem. 2020).
- **Gabriel Alfaro Muñoz**, PUC, Licenciatura in Physics, (1st sem. 2021).
- **Lucas Córdova Hernández**, PUC, Licenciatura in Physics (1st sem. 2022).

- **Daniel Saavedra Torres**, PUC, Licenciatura in Physics (1st sem. 2022).
- **Benjamín Andrés Ruz Lizana**, PUC, Licenciatura in Physics (2nd sem. 2024).

Master students:

- **Tomas Corrales**, PUC (from 1/2008 to (received) 3/2009).
  Currently 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 developement 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***.
  Currently 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).
- **Paulina Müller** from TU Darmstadt, Germany, started her master's thesis in physics in my lab together with our collaborators in Chile, supervised by Prof. Dr. Regine von Klitzing in Germany and Prof. Dr. Ulrich G. Volkmann in Chile. Her work in Chile, which lasted from March 2019 to January 2020, was interrupted by the Chilean protests that started on 18 October 2019 and the early COVID-19 pandemic. She returned to Germany in January 2020.

Doctorial / Ph.D. students:

- **Edgardo A. Cisternas** (from 2005 to (received) 4/2009).
  Currently 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).
  Currently School-Teacher in Germany.
- **Valeria del Campo** (from 1/2007 to (received) 5/2009).
  Currently researcher and professor at the UTFSM / USM, Valparaiso, Chile.
- **María José Retamal** (from 2010 to (received) 10/2014).
  Currently Professor at the Faculty of Engineering of UFT, Santiago Chile.
- **Marcelo Cisternas**, PUC (from 2nd semester 2015 to (received) 06/2021).
  Currently Professor at the Engineering School of University of Valparaiso, Chile.
- **Nicolas Moraga**, PUC (from 2nd semester 2019 to present). In progress.
- **Nancy Catalina Gomez Vierling**, PUC (from 1st semester 2021 to present). In progress.
- **Daniel Saavedra Torres**, PUC (from 1st semester 2023 to present). In progress.

I belong to the

- Doctoral Faculty *(Claustro)* of the Institute of Physics UC and to the

- Doctoral Faculty *(Claustro)* in Engineering Science UC with Industry.

At the moment I have the three mentioned doctoral students (Nicolas Moraga, Nancy Gomez and Daniel Saavedra) working on topics related to the research described above.

Post-docs:

- **Raphaël J. Matelon**: Ph.D. in Physics (in collaboration with Prof. Alejandro L. Cabrera, March 2003 to March 2005); Currently Senior Scientist and Co-founder at Cotton Mouton Diagnostics Limited UK.
- **Carmen González**; Dra. in Chemistry (U de Chile); April 2011 to August 2012. Currently Vice-Rector for Research and Postgraduate Studies at UTEM, Santiago.
- **María José Retamal;** Dra. in Physics (PUC); from 11/2014 - 12/2019. Currently Academic Secretary, Professor and Researcher at UFT, Santiago.

INSTRUCTION AND ADVISEES OF STUDENTS IN CURRENT 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 Martinez 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 Quindio, 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** (IFIS summer course 2012 student of my postdoc Carmen González).
- **Belén Céspedes Parada (**Student of the IFIS Summer Research Laboratory Course 2012).
- **Renate Reisenegger** (Student of the IFIS Summer Research Laboratory Course 2013).
- **Ari Orlando Ortiz Moreno** (Student of the VRI Summer Research Laboratory Course 2014).
- **Bruno Emilio Marcenaro Villouta** (Student of the VRI Summer Research Laboratory Course 2014).
- **Vanessa Zapeda Capdevilla** (Student of the VRI Summer Research Laboratory Course 2014).
- **Marcela Guerra** (Student of the IFIS Summer Research Laboratory Course 2015).
- **Sebastian Molina** (Student of the IFIS Summer Research Laboratory Course 2015).
- **Isidora Sepulveda** (Student of the VRI Summer Research Laboratory Course 2015 student).
- **Vanessa Zapeda Capdevilla** (Student of the IFIS Summer Research Laboratory Course 2015).
- **Camila Gloria Chamorro Ortega** (Student of the IFIS Summer Research Laboratory Course 2017).
- **Sebastián Andrés Urrejola Barrios** (Student of the IFIS Summer Research Laboratory Course 2017).
- **Sebastian Andres Molina Riveros** ((Student of the IFIS Summer Research Laboratory Course 2018).

- **Nancy Catalina Gomez Vierling** (Student of the IFIS Summer Research Laboratory Course 2020).
- **Lucas Cordova Hernández** (Student of the IFIS Summer Research Laboratory Course 2020).
- **Gabriel Alfaro Muñoz** (Student of the IFIS Summer Research Laboratory Course 2020).
- **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).
- **Paulina Marie Müller** from TU Darmstadt, Germany, started her master's thesis in physics in my lab together with our collaborators in Chile, supervised by Prof. Dr. Regine von Klitzing in Germany and Prof. Dr. Ulrich G. Volkmann in Chile. Her work in Chile, which lasted from March 2019 to January 2020, was interrupted by the Chilean protests that started on 18 October 2019 and the early COVID-19 pandemic. She returned to Germany in January 2020.
- **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).
- **Daniel Alejandro Saavedra Torres** (Student of the IFIS Summer Research Laboratory Course 2022).
- **Fernando Alexis Chavez Chaname** (Student of the IFIS Summer Research Laboratory Course 2023).
- **Sofía Gálvez Pastene** (Student of the IFIS Summer Research Laboratory Course 2024).
- **Benjamín Andrés Ruz Lizana** (Student of the IFIS Summer Research Laboratory Course 2024).

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

Positions:

- In charge of the **Liquid Nitrogen Plant** of the Institute (From its implementation ~1995 to date). [*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.*]
- Head of the **SurfLab** IFIS research group.
- Representative of the Faculty of Physics in the **Academic Pastoral Council UC** (since its inception in 2015 to date).

Committees:

- External member of **Master and PhD Thesis Committees** (UTFSM; School of Engineering UC Chile; U. of Chile; USACH; UNAB and Chalmers University, Sweden).
- **Qualification** Committee -2017.
- **Search Committee** for Director of the UC Physics Institute 2017.
- Advisory Committee for **interdisciplinary position Medical Physics** 2018.
- Advisory Committee to the Dean for **Promotion and Qualification** (2015 / 2016 and 2019 / 2020).
- Member of the Committee for the elaboration of the proposed **Complementary Regulations** of the UC Institute of Physics (2015 / 2016).
- Member of "Research Center for Nanotechnology and Advanced Materials **CIEN-UC**".

- Delegate of the Faculty of Physics in the **Pastoral Academic UC** (approx. 1997 - until 2015, when the Pastoral Academic Council UC was initiated).
- Evaluation Commission for the **Qualifying Examination** of the IFIS **Doctoral Program** (2021).
- **Nano Committee** (Clean Room), 2018 - to date.
- IFIS **Service Committee**, 2020 - to date.
- **Incorporation and Promotion** Committee Faculty of Physics (2021 - 2023).
- **Incorporation** Committee Faculty of Physics (2024 - to date).
- VRI **Mediator** in case of conflict between IFIS UC PhD student and his/her tutor/guiding professor (2022 - to date).

EXTERNAL ACTIVITIES:

Referee for international journal "Langmuir".
Referee for international Springer journal "The European physical journal. Special topics."
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.

2024: Official opponent of the examining committee for the PhD thesis defense of candidate Ruslan Ryskulov at the Faculty of Chemistry and Chemical Engineering, Chalmers University of Technology in Gothenburg, Sweden (with meetings on June 12 and December 6, 2024).

Outreach to the society:

Promotion of Physics in Schools / Outreach:
- Exhibition and Experiments in “Escuela Moderna de Paine”, Paine, August 9, 2017.
- Exhibition and Experiments at “Colegio Saint Mary and Joseph School”, Macul, June 19, 2018.

- Forno, Melissa: “Cambio en las pruebas de choque de los autos: ahora impactarán a una barrera móvil”, en: Las Últimas Noticias, 03.07.20, pag.: 23.
- Forno, Melissa: “Desarrollan primer airbag frontal para los pasajeros de asientos traseros de autos”, en: Las Últimas Noticias, 31.07.20, pag.: 23.
- Forno, Melissa y Bobadilla, Matías: “Peugeot usó una plataforma global para fabricar el 208 en América Latina”, en Las Últimas Noticias, 02.09.20, pag.: 29.
- Magazine Contribution to “Diálogos”, year 11, Nº17, January 2022; Las Diferencias Son Nuestra Riqueza, p. 16: “*La Fraternidad Como Nueva Frontera De La Humanidad*”; Pontificia Universidad Católica de Chile; ISSN 0719-1235”.

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/pdfs/cv_ugv.pdf
https://orcid.org/0000-0003-4972-5558