

Curriculum Vitae



Personal Details

Name Ignacio E. Olivares
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Academic Records

- **1992** Dr. rer. nat. (**Ph. D.**)
Ruhr Universität Bochum, Bochum, WEST GERMANY
- **1987** Magister en Ciencias Exactas Mención en Física (**MSc. in Physics**)
Pontificia Universidad Católica de Chile
- **1986** First Class Honours in Physics,
Pontificia Universidad Católica de Chile (PUC)
- **1984** Licenciado en Física, (**BA in Physics**)
Pontificia Universidad Católica de Chile, Santiago, CHILE

Theses

Doctoral Thesis (Dissertation):

Untersuchung dichter Edelgasplasmen am Gas-liner Pinch (Study of dense noble gas plasmas at the Gas-liner-Pinch).

Masters Thesis:

Diseño y construcción de un laser de rubí. (Design and construction of a rubi laser).

B. Sc. Thesis:

Polarización espontánea para esferas de distinto radio (Spontaneous polarization of spheres with different radii).

Positions

- **2001-2003** Assistant Professor, Departamento de Física, Facultad de Ciencias, Universidad de Santiago de Chile
- **1993-2001** Full-Senior Physicist at Comisión Chilena de Energía Nuclear (CCHEN) leading up to four Ph. D in physics (PI-I&D in *Lithium Spectroscopy*, CCHEN 391, Fondecyt1950183)
- **1993** Research Assistant, EU-GRANT at PUC, **POSTDOC Position**
- **1987-1992** DAAD-Grant, RUB
- **1982-1984** Research Assistant at PUC, PUC-Grant

School

- **1975-1978** Secondary School: Colegio Alemán de Valparaíso, Valparaíso.
- **1967-1974** Primary School: Colegio Alemán de Viña del Mar, Viña del Mar.

Career Highlights

- Theoretical study of the spontaneous polarization and surface modes of a pair of dielectrical spheres.
- Construction and operation of a Q-Switched Rubi Laser and study of the control of modes in different cavities.
- Use of electrooptical devices
- Development of a Thomson scattering experiment and measurement of plasma parameters in dense plasmas.
- Introduction of ICCD detection technique for Thomson-Scattering experiments.
- Development of a general numerical procedure to evaluate Thomson scattering spectra in the coherent scattering regime for different ions.
- Study of emission lines of dense plasmas in a Gas-liner Pinch.
- Demonstration of the ability to observe saturated absorption spectra using a diode laser.
- Study of collisions by means of Doppler-free spectroscopy (experimental and theoretical)
- Measurement of resonance ionization spectra of lithium isotopes using a diode laser.
- Construction of a lithium ion beam and mass spectrometer for lithium ions.
- Lithium isotope separation using tunable diode lasers

Experience in programming with Borland C++, Pascal, Fortran; LabView, Mathlab, data acquisition with GPIB and ICCD and novel user of Microsoft Windows.

Areas of interest:

- Optics and photonics, design and engineering
- Nonlinear optics
- Laser physics and engineering
- Ultrasensitive and ultrafast photon detectors

Languages

- Spanish
- English (fluent). TOEFL, Michigan (83%)
- German (fluent). Sprachdiplom II Stufe, Kultusministerkonferenz BRD (1978)

Brief career outline:

Since 1994 Ignacio has been installing a laser spectroscopy laboratory at CCHEN. The main objective is to create the instrumental, theoretical and experimental conditions for a good level experimental physics development at CCHEN. He also has demonstrated hands on experiment the successful use of high-resolution tunable diode lasers in the area of Doppler-free spectroscopy, resonance ionization of lithium isotopes and lithium laser isotope separation.

URL: http://www.geocities.com/ignacioolivares/Electrooptics_engineer.html?981549690260
<http://www.cchen.cl/fisica/laseres.html>
<http://fisica.usach.cl/~iolivare>

8 relevant publications

- 1.) **Ignacio E. Olivares**, et al. "Lithium isotope separation with tunable diode lasers", Applied Optics, Vol. 41, 15, 2973-2977 (2002)
- 2.) **Ignacio E. Olivares**, and Andrés E. Duarte "Resonance ionization spectroscopy in a thermal lithium beam by means of diode lasers", Applied Optics, Vol 38, Nº 36, 7481-7485 (1999)
- 3.) **I. E. Olivares**, A. E. Duarte, T. Lokajczyk, A. Dinklage, F. Duarte, "Doppler-free spectroscopy and collisional studies with tunable diode lasers of lithium isotopes in a heat-pipe oven", J. Opt. Soc. Am. B 15, 1932-1939 (1998).
- 4.) A. Dinklage, T. Lokajczyk, H.-J. Kunze, B. Schweer, **I. E. Olivares**, "In-situ density control for a thermal lithium beam employing diode lasers", Rev. Sci. Instrum. **69**, 321-322 (1998).
- 5.) F. Duarte, A. Costella, I. García Moreno, R. Sastre, E. Saravia, **I. Olivares**, 'Dispersive narrow-linewidth solid-state laser oscillators incorporating Dye-doped HEMA:MMA matrices', OSA Annual Meeting/ILS-XII/Optics&Imaging in the Information Age Advance Program (Optical Society of America, Washington DC, 1996) (p.133). and - Supplement to Optics & Photonics News 7(8), 133 (1996).
- 6.) **I. Olivares** and H.-J. Kunze, "Measurements of Stark broadening of some long-wavelength transitions in CV, CVI and NV" , Phys. Rev. E **47**, 2006-2009 (1993).
- 7.) A. W. DeSilva, T. J. Baig, **I. Olivares**, and H.- J. Kunze, " The effect of impurity ions on the scattered light spectrum of a plasma", J. Phys. Fluids B **4**, 458-464 (1992).
- 8.) **I. Olivares**, R. Rojas and F. Claro, "Surface modes of a pair of unequal spheres", Phys. Rev. B **35**, 2453-2455 (1987).

OTHER PUBLICATIONS

- 1.) **Ignacio E. Olivares**, C. Rojas, “ Atomic lithium vapor laser isotope separation”, *Revista Mexicana de la Ciencia.*, 48, 72-73 (2002)
- 2.) **I. E. Olivares** y A. E. Duarte, “*Espectroscopía Doppler-free y estudios colisionales en un heat-pipe por medio de diodos láseres intonizables*” *Contribuciones Científicas y Tecnológicas*, Area Ciencias Básicas, Universidad de Santiago de Chile, N°126, pags. 259-263 (2000)
- 3.) Andrés Duarte, Gustavo Sylvester e **Ignacio Olivares**, “*Espectroscopía Láser en Haz de Litio Atómico Contribuciones Científicas y Tecnológicas*”, Area Ciencias Básicas, Universidad de Santiago de Chile, N°126, pags. 254-258 (2000)
- 4.) E. Kovarski, **I.E. Olivares**, E. Saravia, C. Silva, I. Pino, A. Duarte, “Linewidth Resonance Problem”, accepted. SOCHIFI X, (1996).
- 5.) **I. E. Olivares**, E. Kovarski, E. Saravia. “Laser measurements data for RIS of lithium isotopes”, *Proceedings SOCHIFI X*, Valparaíso, 161-162 (1996).
- 6.) **I. E. Olivares**, A. Duarte, E. Kovarski, E. Saravia, “Doppler-free absorption and resonance ionization spectroscopy using an external cavity tunable diode laser”, *Proceedings SOCHIFI X*, Valparaíso, 159-160, (1996).
- 7.) **I. E Olivares**, T. Lokkajczyk, E. Saravia, “Espectroscopía láser resonante en vapor de litio neutro mediante diodos sintonizables”, *Proceedings VI Simposio Nacional de Física Experimental y Aplicada*, Temuco, 202-208 (1996)
- 8.) **I. E. Olivares**, T. Lokkajczyk, E. Saravia, “Generación de vapor de litio y diagnóstico en diodos láser sintonizables”, *Proceedings II Simposio Franco Chileno de Ciencias de los Materiales*, Valparaíso (1995)
- 9.) **I. E. Olivares**, “Efectos de iones pesados en el espectro de scattering de Thomson en plasmas densos”, *Proceedings IX Simposio Chileno de Física*, Temuco, 137-138, (1994)
- 10.) **I. E. Olivares**, “Untersuchung dichter Edelgasplasmen am Gas-Liner Pinch”, *Dissertation*, Ruhr Universität Bochum (1992).
- 11.) **I. Olivares**, A. W. DeSilva, T. J. Baig, H.-J. Kunze, “Spektroskopische Untersuchungen an Übergängen $n=7$ nach $n=6$ in NV, NVI, CV und CVI Ionen”, *Verhandlungen der Deutschen Physikalischen Gesellschaft*, Frühjahrstagung Kiel, 336 (1991).
- 12.) T.J. Baig, A. W. DeSilva, **I. Olivares**, H.-J. Kunze, “Scattered Spectra from Hydrogen Plasmas affected by Ar and Xe impurities”, *Verhandlungen der Deutschen Physikalischen Gesellschaft*, Frühjahrstagung Kiel, 340 (1991).
- 13.) **I. Olivares** and H.-J. Kunze, “Thomson Streuung bei hohen Dichten im Gas-Liner-Pinch”, *Verhandlungen der Deutschen Physikalischen Gesellschaft* 54, Physikertagung München, 425 (1990).
- 14.) **I. E. Olivares**, “Diseño y construcción de un LASER de Rubí”, *Tesis Magister en Ciencias Exactas con Mención en Física*, Pontificia Universidad Católica de Chile, (1987).

- 15.) **I. E. Olivares**, “Polarización espontánea para esferas de distinto radio”, *Tesis Licenciatura en Física*, Pontificia Universidad Católica de Chile, (1984).

