

Gilson Ronchi

Profile

Research Physicist holding bachelor's degree in Physics, and Applied and Computational Mathematics. Has experience in design, implementation and management of complex systems, particularly in experimental physics, with emphasis on laser-aided diagnostics in plasma physics, VIS/NIR spectroscopy, and microwave (reflectometry and interferometry) diagnostics. Skilled in programming, numerical simulation, data acquisition and control systems, data analysis and electronics.

Contact

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🌐 www.linkedin.com/in/gilson-ronchi/


🐙 <https://github.com/gronchi>


Personal info


- Citizenship: Brazilian
- Birthday: 1985-02-10
- Civil status: Married


Languages

Portuguese (native) 


English (fluent) 


Spanish (intermediate) 


French (beginner) 


German (beginner) 


Programming


Python, C 


C++ 


Matlab 


Mathematica 

LabVIEW 

SQL 

R 

IDL 

HTML/JS/CSS 

Certifications

- Google Data Analytics Certificate (Coursera, 2021)
- Data Skills for Business Track (DataCamp, 2020)

Education

- **Ph.D. in Physics** 2012 – 2017
UNIVERSITY OF SÃO PAULO, São Paulo, Brazil
Thesis: *Investigation of pressure profiles in the TCABR tokamak.*
Research field: Laser-Aided diagnostics, Optics, Spectroscopy, Microwaves (Reflectometry/Interferometry), Computational Simulation.
- **M.Sc. in Physics** 2010 – 2012
UNIVERSITY OF CAMPINAS, Campinas, Brazil
Thesis: *Studies of DC plasma discharge.*
- **B.Sc. in Computational and Applied Mathematics** 2010 – 2011
UNIVERSITY OF CAMPINAS, Campinas, Brazil.
- **B.Sc. in Physics** 2006 – 2009
UNIVERSITY OF CAMPINAS, Campinas, Brazil.



Experience

- **Guest Researcher** Sep. 2017 – Present
MAX-PLANCK INSTITUTE FOR PLASMA PHYSICS, Garching, Germany.
Operation, management and data analysis of the tangential Thomson Scattering Diagnostic on the ASDEX Upgrade tokamak. Study of the plasma pedestal dynamics, in particular during edge localized modes.
- **Postdoctoral Researcher** Jul. 2017 – Present
DIFFER, Eindhoven, The Netherlands.
Implementation of the 10 kHz multipass tangential Thomson scattering diagnostic at the ASDEX Upgrade tokamak. Design and implementation of the hardware and software for data acquisition and control, and analysis. Data analysis of Collective Thomson Scattering in TIG welding for industrial application. Preparation of scientific reports/papers and conference communications and to contribute to the scientific and collaborative research environment at DIFFER.
- **Graduate teaching assistant** Jul. 2012 – Nov. 2016
UNIVERSITY OF SÃO PAULO, São Paulo, Brazil
Assist the Lecturer during classes; develop practical demonstration activities in the classroom; collaborate with directed studies and exercise lists, attendance at after-class help in undergraduate courses (Physics I, Physics III, Electromagnetism I, Physics for Electrical Engineering III, Electricity and Magnetism II).
- **Junior Electrical Designer** Feb. 2003 – Mar. 2006
WEG INDUSTRIES, Jaraguá do Sul, Brazil
Design and implementation of hardware projects for electrical motor drive systems with frequency converters, soft starters, servo controllers and AC/DC converters, PLCs. Design of electrical panels and mechanical layout using CAD software; control and protection equipment sizing, specification/purchase of materials.
- **Industrial Electronics Apprentice** Feb. 2000 – Jan. 2003
WEG INDUSTRIES, Jaraguá do Sul, Brazil

Skills

- **Programming:** Python, C, C++, Matlab, Mathematica, LabVIEW, SQL, R, git, HTML, JS and CSS, GNU Math-Prog.
- **Optics:** Optical-mechanical design; Zemax
- **Productivity Applications:** Office Suites, LaTeX, AutoCAD.
- **Operating Systems:** Microsoft Windows family, Linux.
- **Electronics:** Analog and digital electronics (logic circuits, timers, micro-controllers), power electronics, Industrial Electronics (motor speed controllers, servo systems, PLC); Computer-Aided Design Tools: Cadence OrCAD, NI Multisim.

Publications

- Online Scientific profile:
 orcid.org/0000-0003-3097-3033
 scholar.google.com/citations?user=sQkLzF8AAAAJ
- G. Ronchi, M. Laki, H.J. va der Meiden *et al.* Measurement of electron properties in a tungsten inert gas arc by Thomson Scattering. (in preparation)
- G. Ronchi, M. Kantor *et al.* Tangential Thomson Scattering diagnostics for pedestal characterization. (in preparation)
- J.H. Severo, G.P. Canal, G. Ronchi *et al.* Overview of plasma rotation studies on the TCABR tokamak. *Plasma Phys. Control. Fusion*, 2021 (accepted for publication).
- G.G. Grenfell, I.C. Nascimento, D.S. Oliveira *et al.* H-mode access and the role of spectral shift with electrode biasing in the TCABR tokamak. *Physics of Plasmas*, (**25**), 2018
- G. Ronchi, J.H.F. Severo, F. Salzedas *et al.* Interplay between intrinsic plasma rotation and magnetic island evolution in disruptive discharges. *Plasma Phys Rep*, (**42**) 465-471, 2016
- W.P. de Sá, G. Ronchi. MDSplus integration at TCABR tokamak: Current status. *Fusion Eng. Des.*, 2016.
- P.G.P. Puglia, A.G. Elfimov, A.V. Andriati *et al.* Mass number identification by Alfvén wave diagnostics in hydrogen and helium plasmas in TCABR. *Physics Letters A*, (**380**) 2016.
- J.H.F. Severo, G. Ronchi, R.M.O. Galvão *et al.* Investigation of rotation at the plasma edge in TCABR. *Nuclear Fusion*, (**55**), 2015.
- F. do Nascimento, M. Machida, J.H.F. Severo, E. Sanada, G. Ronchi. Plasma Core Electron Density and Temperature Measurements Using CVI Line Emissions in TCABR Tokamak *Braz. J. Phys*, 2015.
- G. Ronchi, J.H.F. Severo. W.P. de Sá and R.M.O. Galvão. Data Acquisition and Automation for Plasma Rotation Diagnostic in the TCABR Tokamak. *J. Phys.: Conf. Ser* (**591**) 012007, 2015.
- P.G.P. Puglia *et al.* Excitation of Global Alfvén Waves by Low RF Power on TCABR. *J. Phys.: Conf. Ser*, (**591**) 012002, 2015.
- Galvão, R. M. O. *et al.* Report on recent results obtained in TCABR. *J. Phys.: Conf. Ser*, (**591**), p. 012001, 2015
- G. Ronchi, M. Machida. On Correction Factor in Scaling Law for Low Pressure DC Gas Breakdown. *J. Phys.: Conf. Ser*, IOP, 2014.
- F. do Nascimento, M. Machida, G. Ronchi. *et al.* Comparison of Plasma Visible Spectral Emissions Between Nova-UNICAMP and TCABR Tokamak. *J. Phys.: Conf. Ser*, IOP, 2014.
- P.G.P. Puglia, A.G. Elfimov, L. Ruchko *et al.* Externally driven global Alfvén eigenmodes applied for effective mass number measurement on TCABR. *Physics of Plasmas* (**21**) 122509, 2014.
- Yu.K. Kuznetsov, I.C. Nascimento, Silva *et al.* Long-distance correlations in TCABR biasing experiments. *Nuclear Fusion* (**52**) 063004, 2012.

Complementary Education

- **School on Spectroscopy in Astrophysics and Laboratory Plasmas** (10h). ICTP-SAIRF, São Paulo, Brazil. 2016
- **11th Summer Training Course in Plasma Physics in Magnetic Confinement Fusion Device.** (80h). IPP CR, Prague, Czech Republic. 2013
- **LAWPP School on Plasma Physics** (30h). National University of Mar del Plata, Mar del Plata, Argentina. 2011
- **LAWPP School on Plasma Physics** (40h). Chilean Nuclear Energy Commission, Santiago, Chile. 2010
- **Technical Assistant in Analog Electronics** (1000h). SENAI/SC, Jaraguá do Sul, Brazil. 2003
- **Technical Assistant in Analog Electronics** (1000h). SENAI/SC, Jaraguá do Sul, Brazil. 2004

References

- **Professor Dr. Ricardo Galvão** ✉ rgalvao@if.usp.br
UNIVERSITY OF SAO PAULO, São Paulo, Brazil.
- **Dr. Mikhail Kantor** ✉ m.kantor@mail.ioffe.ru
IOFFE INSTITUTE, Saint Petersburg, Russia.
- **Doz. Dr. Elisabeth Wolfrum** ✉ epw@ipp.mpg.de
MAX-PLANCK INSTITUTE FOR PLASMA PHYSICS, Garching, Germany.
- **Dr. Marco de Baar** ✉ M.R.deBaar@differ.nl
DUTCH INSTITUTE FOR FUNDAMENTAL ENERGY RESEARCH, Eindhoven, the Netherlands.