

Curriculum Vitae - Sílvio R. Dahmen

November 2022

Personal Information

Born in Araras, State of São Paulo, Brazil on September 22, 1966. Brazilian citizenship, married, no children. Languages: Portuguese (native), English and German (fluent), Spanish (good), Italian (reading and listening comprehension), Latin, French and Dutch (reading).

Contact Information

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Education

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| 1984 | High School Diploma, Honor Roll
Hubbard High School, Hubbard OH, USA. |
| 1989 | BSc Physics, <i>summa cum laude</i>
Universidade Federal de São Carlos, Brazil. |
| 1991 | MSc Physics
Universidade Federal de São Carlos, Brazil. |
| 1997 | Dr. rer. Nat.
Rheinische Friedrich-Wilhelms-Universität Bonn, Germany. |

Academic Position

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| 1994 – 1997 | Scientific/Teaching Assistant (Wissenschaftliche Hilfskraft)
Universität Bonn, Bonn, Germany. |
| 1997 – 1998 | Research Fellow
Sloane Physics Lab, Yale University, USA. |
| Since 1999 | Associate Professor (tenured 2001)
Instituto de Física, UFRGS, Porto Alegre, Brazil. |
| Since 2006 | Research Fellow, Alexander-von-Humboldt Stiftung, Germany. |

Scholarships and Honors

- 1989** – Jorge André Swieca Medal (BSc summa cum laude) for highest level of academic excellence.
- 2006** – Alexander-von-Humboldt Scholarship (Germany).
- 2011** – Prêmio Jabuti (Jabuti Literary Prize) for best book in the category Science.
Book title: *Teoria Quântica: História e Implicações Culturais*.
O. Freire, O. Pessoa and J. L. Bromberg (eds).
Contributed chapter on Max Planck and the physics of stochastic systems.

Projects (with funding)

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| 2002 – 2004
Co-coordinator
(Technological) | Project: Efficiency studies of public illumination systems.
Funding: ANEEL Grant (Brazilian National Agency for Electrical Energy Resources). |
| 2008 – 2010
Coordinator | Project: Energy dissipation on surfaces
Funding: DAAD – Capes PROBAL bilateral cooperation |
| 2012 – 2016
Participant | Project: Statistical Physics in Diverse Realisations.
Marie Curie Actions – Horizon 2016
Funding: European Union.
Coventry University, UK (with Prof. R. Kenna) |
| 2018 – 2020
Coordinator | Project: Women, Conflict and Peace. Gendered Networks in Early Medieval Narratives.
Funding: Leverhulme Trust
Sheffield University, UK (with Prof. Julia Hillner) |
| 2022 –
Coordinator
(BR) | Project: Network Epistemology in Practice
Funding: European Research Council (ERC)
Technische Universität Berlin, Germany, (with Dr. Adrian Wüthrich) |

Visiting Professorships

- 2002** – Universität Duisburg – Essen, Germany (Prof. D. Wolf).
- 2003** – University of Queensland, Brisbane, Australia (Prof. J. Links).
- 2006** – Universität Würzburg, Würzburg, Germany (Prof. H. Hinrichsen and W. Kinzel).
- 2007** – Max Planck Institute for the History of Science, Berlin, Germany (Prof. J. Renn).
- 2009** – Université Henri Poincaré, Nancy, France (Prof. M. Henkel).
- 2014** – Coventry University, Coventry, United Kingdom (Prof. R. Kenna).
- 2016** – Friedrich-Schiller-Universität Jena, Jena, Germany (Prof. R. Gramsch-Stehfest).
- 2018** – Technische Universität Berlin, Berlin, Germany (Prof. F. Steinle).
- 2020** – Sheffield University, Sheffield, United Kingdom (Prof. J. Hillner).

Supervision (PhD, MSc and BSc monography)

- 2003** – Pedro L. G. Jardim, “Extensão do método de monitoração da espessura óptica para uma classe de fluidos não-newtonianos”. Co-advisor (Msc)
- 2007** – Pedro L. G. Jardim, ‘Non-newtonian fluid flow during spin coating’. Co-advisor (PhD).
- 2007** – Italo G. Neide, “Estudo do atrito de um dímero deslizando sobre um potencial periódico bidimensional”, Co-advisor (MSc)
- 2011** – Italo G. Neide, ‘Effect of rotational degrees of freedom in friction of a dimer on a periodical substrate’. Co-advisor (PhD).
- 2015** – Guilherme M. Oliveira, ‘Thermalization of low-dimensional quantum systems’. Advisor (Msc).
- Since 2003** – 17 Scientific Tutorings (Bolsa IC) and 6 BSc monographies.

Publications (overview)

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| 42 | Papers on peer-reviewed journals (16 as sole author). |
| 5 | Complete proceeding articles (peer-reviewed). |
| 1 | Book (with M. Gallas) on Electromagnetic Theory and Optics (ISBN: 978-8-599-3794, online version at www.if.ufrgs.br/~dahmen). |
| 1 | Lecture notes on Special Relativity (312 p., online version at www.if.ufrgs.br/~dahmen). |
| 1 | Lecture notes on General Relativity (326 p., online version at www.if.ufrgs.br/~dahmen). |
| 7 | Book chapters (2 in print as of November 2022). |
| 2 | Book translations: ‘Modern Quantum Mechanics’ by J.J. Sakurai and ‘Numerical Recipes in C++’, by Press et. al. (the last one in collaboration with R. da Silva). |
| 11 | Annotated translations of historically relevant papers. |
| 9 | Newspaper articles (one of the in the German <i>Frankfurter Allgemeine Zeitung</i>). |
| 79 | Total |

Selected Publications

- 1.** **2023** P MacCarron, M MacCarron, J Yose, SR Dahmen and R Kenna
 Network Analysis of Epic Literature.
 In ‘The Epic World’, PJ Lothspeich (ed), Routledge (in print).
- 2.** **2023** S. R. Dahmen
 Die Netzwerke der Frauen im Angelsächsischen Klöster aus der Perspektive des Historia Ecclesiastica Britannica von Beda.
 Akademie der Wissenschaften Nordrhein-Westfalen (in print).
- 3.** **2020** SD Prado, SR Dahmen, ALC Bazzan, M MacCarron, J Hillner
 Gendered Networks and Communicability in Medieval Historical Narratives.
 Advances in Complex Systems 23 (02), 2050006.

4. **2019** SR Dahmen and B Wehefritz-Kaufmann
A new exponent in the equilibrium shape of crystal surfaces.
J. Stat. Mech.: Theory and Experiment 10, 104005.
5. **2017** ALC Bazzan, SR Dahmen and R. Gramsch
Community Detection in the Network of German Princes in 1225: a case study.
Complex Networks VIII, Springer Verlag.
6. **2016** SD Prado, SR Dahmen, ALC Bazzan, P MacCarron and R Kenna
Temporal Network Analysis of Literary Texts
Advances in Complex Systems 19, 1650005
7. **2015** SR Dahmen
The Mathematics and Physics of Denis Diderot. I: On pendulums and air resistance.
European Physical Journal H 40), 337
8. **2015** SR Dahmen
Die Mathematik der Epen: die Netze der Helden und Täter.
Frankfurter Allgemeine Zeitung , November 4 2015.
(Ressort Natur und Wissenschaft, section Nature and Science)

Research Interests

My formal training is in integrable system in statistical physics, particularly the interface between quantum field theory and statistical mechanics. I have always been interested in the cross-fertilization of seemingly uncorrelated areas and in developing tools that helps one better understand one area by using concepts from another. Some of my papers have involved experimental work. More recently I have been interested in the development and application of temporal networks in the Humanities. I have also published articles on the history of early modern physics. I have also started a collaboration with Prof. Rafael Nunes (UFRGS) on orbits near massive objects. My main interests are:

- Mathematical Physics.
- Exactly Integrable Models in Statistical Physics.
- Complex and Temporal Networks.
- General Relativity
- History and Popularization of Physics
- Mathematical Logic
- Scientific Translation and Writing

Editorial Boards, Refereeing Activities

- 2009 – 2013** General Editor, *Revista Brasileira de Ensino de Física* and *Física na Escola*.
- 2001 – present** Referee for Physical Review E, Journal of Physics A: Math. Gen., Physica A, Journal of Statistical Mechanics: Theory and Experiment.

Selected Invited Talks

- 2007** – Gödel: Logic and Time. Symposium Gödel and Einstein organized by the Brazilian Center for Physical Research (CBPF), Rio de Janeiro.
- 2008** – Max Planck und die Statistische Thermodynamik (Max Planck e a Física de Sistemas Estocásticos). Spring meeting of the German Physical Society (DPG). Technische Universität Berlin, Berlin.
- 2016** – Netzwerke als Brücken zwischen den Geistes – und Naturwissenschaften (Networks as bridges between the Natural Sciences and the Humanities). Keynote speaker at the opening ceremony of the DHNET, the Digital Humanities Network of University of Jena, Germany.
- 2019** – Die Netzwerke der Helden und Täter (The network of Heroes and Culprits). Keynote speaker of the Symposium Alles Netzwerk organized by the Academy of Sciences and Arts of the State of North Rhine – Westphalia (AKWK), Düsseldorf, Germany.
- 2023** – Brazilian School and Workshop on Statistical Mechanics – Recent Developments Applications. In honor of the 70th Anniversary of Prof. F. C. Alcaraz, IFSC, Jan. 23 – 28 2023. Invited talk.

Teaching Experience

Undergraduate level:

- Electromagnetism (Engineering, Physics)
- Electromagnetism, Lab course (Engineering, Physics)
- Electrodynamics (Physics)
- Thermodynamics and Statistical Physics (Engineering)
- Thermodynamics (Physics)
- Special Relativity (Physics)
- General Relativity (Physics)
- Quantum Many-Body Theory (Physics)

Graduate level: Low Temperature Physics (Bose-Einstein Condensates)

Elaboration of course contents for newly created disciplines: Thermodynamics and Statistical Mechanics for physics engineering undergraduates; Special Relativity for physics undergraduates; Electromagnetism for physics undergraduates pursuing a teaching career (licenciatura).

Outreach

- 2005** – Organizer of the exposition 'Einstein Returns to South America' to celebrate the 100th anniversary of Einstein's Annus Mirabilis (in collaboration with the Goethe Institut – Porto Alegre and the Museu de Astronomia e Ciências Afins – Rio de Janeiro).
- 2017** – Organizer of the exposition 'Luther and the German Language' to mark the 500th anniversary of Martin Luther's 99 thesis (in collaboration with the DAAD – Deutscher Akademischer Austauschdienst).

Community activities

2015 – 2018 Volunteering presidency of the Goethe-Institut in Porto Alegre. Supervision of cultural, scientific, teaching programs and interaction with local public schools. Representative duties with Brazilian and German authorities.