

# Simon Širca

Faculty of Mathematics and Physics  
Jadranska ulica 19, 1000 Ljubljana, Slovenia

☎ +386 1 4766 574

FAX +386 1 2517 281

✉ [simon.sirca@fmf.uni-lj.si](mailto:simon.sirca@fmf.uni-lj.si)

🌐 <http://tyto.fmf.uni-lj.si/Sirca.html>



## Personal data

- 1969 born on February 27 in Ljubljana, Slovenia
- 1999 **PhD in experimental nuclear physics**, U of Ljubljana, *Axial form-factor of the nucleon from coincidence pion electroproduction at low  $Q^2$* , supervisors prof. dr. Milan Potokar and prof. dr. Thomas Walcher.

## Research focus

### Electro-weak structure and dynamics of strongly interacting systems.

- Experiment Electron scattering on light nuclei, coincidence experiments, polarized beams and targets, recoil polarimetry.
- Theory Chiral quark models of hadrons, coupled-channel approaches to electro-weak production of mesons on nucleons.

## Professional timeline

- 1993-1999 **Young researcher**, *Jožef Stefan Institute (JSI), Ljubljana.*
- 1993-present **Research work**, *A1 Collaboration, Institut für Kernphysik (KPH), U of Mainz, Germany.*
- 1999-2004 **Assistant in physics**, *Dept of Physics, U of Ljubljana.*
- 2000-02 **Postdoctoral research associate**, *Massachusetts Institute of Technology, Cambridge, MA, USA (Nuclear Interactions Group, prof. William Bertozzi) and Thomas Jefferson National Accelerator Facility (TJNAF, Newport News, VA, USA).*
- 2000-present **Research work**, *OOPS and BLAST Collaborations (MIT-Bates) and Hall A Collaboration (TJNAF).*
- 2003-2008 **Research scientist**, *JSI.*
- 2004-2011 **Assistant professor of physics**, *U of Ljubljana.*
- 2004-present **Head**, *Structure of hadronic systems Group, JSI and Faculty of Mathematics and Physics, U of Ljubljana.*
- 2008-2017 **Senior research scientist**, *JSI.*
- 2011-2016 **Associate professor of physics**, *U of Ljubljana.*
- 2011-2019 **Associate principal investigator**, *KPH, U of Mainz, Collaborative Research Centre CRC-1044 ("The Low Energy Frontier of the Standard Model").*
- 2017-present **Scientific Councillor**, *JSI.*
- 2016-present **Professor of physics**, *Faculty of Mathematics and Physics, U of Ljubljana.*

## Collaboration membership

- 1996–present **A1 Collaboration**, *Institut für Kernphysik, University of Mainz.*  
2000–present **OOPS and BLAST Collaborations**, *MIT-Bates Linear Accelerator Center.*  
2000–present **Hall A Collaboration**, *Thomas Jefferson National Accelerator Facility.*

## Organization

- co-spokesperson Jefferson Lab Experiment E12–20–011: *Measurement of the high-energy contribution to the GDH sum rule*  
co-spokesperson Jefferson Lab Experiment E12–14–005: *Wide-angle exclusive photoproduction of  $\pi^0$  mesons*  
co-spokesperson Jefferson Lab Experiment E12–14–003: *Wide-angle Compton scattering at 8 and 10 GeV photon energies*  
co-spokesperson Jefferson Lab Experiment E05–102: *Measurement of  $A_x$  and  $A_z$  asymmetries in the quasi-elastic  ${}^3\text{He}(\vec{e}, e'd)$  reaction*  
data analysis coordinator OOPS Collaboration at MIT-Bates  
co-organizer XVIIIth European Conference on Few-Body Problems in Physics, 2002  
co-organizer International Workshop on (e,e'p) Processes, 2017  
co-organizer Bled Mini-Workshops, 2000–2019: <http://www-f1.ijs.si/BledPub>.  
editor Faculty of Mathematics and Physics Press

## Teaching Experience

- Physics I (physical engineering)**, 99/00–08/09.  
**Physics II (physical engineering)**, 03/04–07/08.  
**Physics II / Modern Physics 1+2 (TA)**, 02/03–12/13.  
**Modern physics 1**, 18/19–24/25.  
**Probability in physics**, 11/12–22/23.  
**Mathematical physics practicum (computational physics)**, 02/03–13/14.  
**Model analysis I (advanced computational physics)**, 14/15–24/25.  
**Model analysis II (advanced computational physics)**, 15/16–24/25.

## Computer skills

Linux, C/C++, Fortran, HTML,  $\text{\LaTeX}$ , Mathematica

## Languages

Slovenian (native), English (advanced), German (advanced), Serbo-Croatian (advanced)

## Membership in societies

- 1987–present National Geographic Society, Washington, DC, USA  
1999–present Society for monitoring and research of birds, Ljubljana, Slovenia  
2006–present Richard Wagner Society, Ljubljana, Slovenia

## Non-professional passions

books, mountaineering, classical music, opera and theatre, photography, mushrooms, history, ornithology, translation

## Publications

h-index = 55 (inspire-hep)

10 most-cited papers are listed below. Complete list at <http://inspirehep.net>.

### Scientific papers

- [1] O. Gayou et al. (Jefferson Lab Hall A Collaboration), Measurement of  $G_{Ep}/G_{Mp}$  in  $\vec{e}p \rightarrow e\vec{p}$  to  $Q^2 = 5.6 \text{ GeV}^2$ , Phys. Rev. Lett. 88 (2002) 092301.
- [2] S. Abrahamyan et al. (Jefferson Lab Hall A Collaboration), Measurement of the neutron radius of  $^{208}\text{Pb}$  through parity-violation in electron scattering, Phys. Rev. Lett. 108 (2012) 112502.
- [3] J. C. Bernauer et al. (A1 Collaboration), High-precision determination of the electric and magnetic form factors of the proton, Phys. Rev. Lett. 105 (2010) 242001.
- [4] R. Subedi et al. (Jefferson Lab Hall A Collaboration), Probing cold dense nuclear matter, Science 320 (2008) 1476.
- [5] J. C. Bernauer et al. (A1 Collaboration), Electric and magnetic form factors of the proton, Phys. Rev. C 90 (2014) 015206.
- [6] A. J. R. Puckett et al. (Jefferson Lab Hall A Collaboration), Recoil polarization measurements of the proton electromagnetic form factor Ratio to  $Q^2 = 8.5 \text{ GeV}^2$ , Phys. Rev. Lett. 104 (2010) 242301.
- [7] A. Acha et al. (Jefferson Lab Hall A Collaboration), Precision measurements of the nucleon strange form factors at  $Q^2 \sim 0.1 \text{ GeV}^2$ , Phys. Rev. Lett. 98 (2007) 032301.
- [8] X. Qian et al. (Hall A Collaboration), Single spin asymmetries in charged pion production from semi-inclusive deep inelastic scattering on a transversely polarized  $^3\text{He}$  Target, Phys. Rev. Lett. 107 (2011) 072003.
- [9] C. Munoz Camacho et al. (Jefferson Lab Hall A Collaboration), Scaling tests of the cross-section for deeply virtual Compton scattering, Phys. Rev. Lett. 97 (2006) 262002.
- [10] X. Zhan et al. (Jefferson Lab Hall A Collaboration), High-precision measurement of the proton elastic form factor ratio  $\mu_p G_e/G_M$  at low  $Q^2$ , Phys. Lett. B 705 (2011) 59.

### Books

- [1] S. Širca, M. Horvat, *Computational Methods in Physics*, 3rd Edition, Springer Verlag, Berlin 2025, ISBN 978-3-031-68565-1.
- [2] S. Širca, *Probability in Physics*, Springer Verlag, Berlin 2016, 978-3-319-31611-6.
- [3] R. Krivec, B. Golli, M. Rosina, S. Širca (eds.), *Proceedings of the XVIIIth European Conference on Few-Body Problems in Physics*, Bled, Slovenia, September 8-14, 2002, Few-Body Systems Suppl. 14 (2003), Springer Verlag, Wien, New York, ISSN 0177-8811, ISBN 978-3-211-83900-3.