

**PERSONAL INFORMATION**

Stephan Malbrunot (family name before marriage: Ettenauer)  
born on 04.02.1982 in Horn, Austria, married, 2 children  
**Nationality:** Austria  
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**NARRATIVE SUMMARY**

I am a research scientist at TRIUMF and an adjunct professor at the University of Toronto. After work on  $\gamma$  - ray spectroscopy and detector development in Stockholm, Berkeley, Michigan State, and TRIUMF, I have performed precision studies in ion traps at ISAC/TRIUMF and ISOLDE/CERN. By advancing related techniques, I also worked within a team at Harvard to establish stringent comparisons in properties of matter and anti-matter. In my previous position at the CERN-ISOLDE facility, I led the development of the novel Multi-Ion Reflection Apparatus for Collinear Laser Spectroscopy (MIRACLS), a novel ion-trap system for highly-efficient laser spectroscopy. Following my return to TRIUMF in 2022, I have initiated a new experimental program to exploit radioactive molecules (RadMol) as new intriguing precision probes for new physics beyond the standard model of particle physics.

**EDUCATION**

- 04/2012 **Ph.D. in Physics**, University of British Columbia, Vancouver, Canada  
'First Mass Measurements of Highly Charged, Short-lived Nuclides in a Penning Trap and the Mass of  $^{74}\text{Rb}$ ' (Adviser: Prof. Dr. Jens Dilling)
- 01/2006 **Dipl. Ing. (M.Sc. equivalent)**, Vienna University of Technology, Austria  
Research for master thesis within the GRETINA collaboration at the Nuclear Science Division of Lawrence Berkeley National Laboratory (LBNL), California, USA  
Master Thesis: 'Study of Measured and Simulated Signals for a Highly Segmented Co-axial HPGe Detector Module' (Adviser: Dr. I-Yang Lee)
- 09/2003-08/2004: Erasmus-Exchange year at the Royal Institute of Technology (KTH) in Stockholm, Sweden, including a research internship with Prof. Dr. Bo Cederwall

**CURRENT POSITION**

- 2022 – now Research Physicist, TRIUMF, Vancouver, Canada  
2021 – now Adjunct Professor, University of Toronto, Canada

**PREVIOUS POSITIONS**

- 02/2017 – 01/2022 CERN research physicist, ERC project leader of the MIRACLS project
- 02/2014 – 01/2017 CERN Research Fellow, since 05/2016 within the COLLAPS collaboration at ISOLDE (COLLAPS spokesperson: Prof. Dr. Klaus Blaum), CERN, Switzerland
- 05/2012 - 04/2014 Researcher at Harvard University, Cambridge, Massachusetts, USA, within the ATRAP collaboration (ATRAP spokesperson: Prof. Dr. Gerald Gabrielse)
- 07/2006 - 09/2006 Visiting Scholar within the Group of Prof. Dr. Thomas Glasmacher at the National Superconducting Cyclotron Laboratory (NSCL) of Michigan State University (MSU), East Lansing, Michigan, USA
- 02/2006 - 05/2006 Research Assistant within the TIGRESS collaboration at TRIUMF, Vancouver, Canada

**RESEARCH GRANTS (as the leading principal investigator)**

- NSERC Subatomic Physics Project Grant 'Radioactive Molecules' 2022/24
- NSERC Subatomic Physics Project Grant 'Radioactive Molecules' 2022/23
- Starting Grant of the European Research Council (ERC): 2017-2022 for the development of the Multi Ion Reflection Apparatus for Collinear Laser Spectroscopy (MIRACLS) of short-lived radionuclides
- Research grant of the ATTRACT programme: 2019-2020 for the development and application of versatile, highly UV reflecting and absorbing coatings
- Research grant of the CERN Medical Applications Funds: 2018-2023 to extend MIRACLS to a highly selective, high-flux mass separator

**FELLOWSHIPS AND AWARDS**

- CERN Research Fellowship under the CERN-COFUND programme (2014-2017, 3 years)
- Erwin Schrödinger Fellowship [part of Marie Skłodowska-Curie Actions] (2012-2015, 3 years, aborted in Feb. 2014 because of CERN fellowship)
- APART [Austrian Programme for Advanced Research and Technology] Scholarship of the Austrian Academy of Sciences (successful application, but declined by applicant)
- Foreign Postdoctoral Researcher Fellowship at RIKEN, Japan, (successful application, but declined by applicant)
- PhD thesis award, Division of Nuclear Physics, Canadian Association of Physicists, 2011-12
- Vanier Canada Graduate Scholarship (2009-2012, 3 years)
- Izaak Walton Killam Memorial Pre-Doctoral Fellowship (2009-2011, 2 years)
- Four Year Doctoral Fellowship, University of British Columbia (2009-2012)
- Advancement Scholarship of the Dep. of Physics at Vienna University of Technology (2005)
- Grant for Scientific Research Abroad, Inter. Relations, Vienna University of Technology (2005)
- Study Achievement Award of the Vienna University of Technology (2002, 2003, 2004)

**STUDENT SUPERVISION AND MENTORING**

- Research supervisor of 7 PhD (4 completed), 3 MSc (3 completed) and 5 BSc students (4 completed) as well as 6 post-docs (since 2017 as an independent PI)
- Experiment-local, daily supervision of 3 PhD and 2 MSc students and (prior to 2017)
- Direct supervision of 11 undergraduate internship students

**CAREER BREAKS**

10/2006-07/2007 civil servant (alternative to the compulsory army service in Austria.)

2016 and 2019 parental leave of 4 months for each of the two children

**SCIENTIFIC PRESENTATIONS**

21 invited talks at international conferences and workshops (due to my parental leaves 2016 and 2019 I declined 4 invited talks)

14 contributed talks at international conferences and meetings,

18 invited physics colloquia at research institutes in Europe, Northern America, and Japan.

**PUBLICATION SUMMARY**

82 peer-reviewed publications (published or accepted for publication)

8 as the first leading author

14 in Phys. Rev. Lett. and 8 in Phys. Lett. B.

All of these publications were written within smaller scale experimental collaborations (5 to 30 people). i.e. in order to be listed as a co-author, every author is required to make a significant contribution to the experimental work and result.

**5 Key Publications** ('anti-chronological' order):[Doppler and sympathetic cooling for the investigation of short-lived radioactive ions](#)

S. Sels, F.M. Maier, M. Au, P. Fischer, C. Kanitz, V. Lagaki, S. Lechner, E. Leistenschneider, D. Leimbach, E.M. Lykiardopoulou, A. A. Kwiatkowski, T. Manovitz, Y. N. Vila Gracia, G. Neyens, P. Plattner, S. Rothe, L. Schweikhard, M. Vilen, R.N. Wolf and S. Malbrunot-Ettenauer  
Phys. Rev. Research 4, 033229 (2022)

[Nuclear Charge Radii of the Nickel Isotopes 58-68,70Ni](#)

**S. Malbrunot-Ettenauer**, S. Kaufmann, S. Bacca, C. Barbieri, J. Billowes, M. L. Bissell, K. Blaum, B. Cheal, T. Duguet, R. F. Garcia Ruiz, W. Gins, C. Gorges, G. Hagen, H. Heylen, J. D. Holt, G. R. Jansen, A. Kanellakopoulos, M. Kortelainen, T. Miyagi, P. Navrátil, W. Nazarewicz, R. Neugart, G. Neyens, W. Nörtershäuser, S. J. Novario, T. Papenbrock, T. Ratajczyk, P.-G. Reinhard, L. V. Rodríguez, R. Sánchez, S. Sailer, A. Schwenk, J. Simonis, V. Somà, S. R. Stroberg, L. Wehner, C. Wraith, L. Xie, Z. Y. Xu, X. F. Yang, and D. T. Yordanov  
Phys. Rev. Lett. 128, 022502 (2022)

[First steps in the development of the Multi Ion Reflection Apparatus for Collinear Laser Spectroscopy](#)

S. Sels, P. Fischer, H. Heylen, V. Lagaki, S. Lechner, F.M. Maier, P. Plattner, M. Rosenbusch, F. Wienholtz, R.N. Wolf, W. Nörtershäuser, L. Schweikhard, **S. Malbrunot-Ettenauer**  
Nucl. Instr. Meth. B 463, 310 (2020)

[One-Particle Measurement of the Antiproton Magnetic Moment](#)

J. DiSciaccia, M. Marshall, K. Marable, G. Gabrielse, **S. Ettenauer**, E. Tardiff, R. Kalra, D. W. Fitzakerley, M. C. George, E. A. Hessels, C. H. Storry, M. Weel, D. Grzonka, W. Oelert, and T. Sefzick (ATRAP Collaboration)  
Phys. Rev. Lett. 110, 130801 (2013) ; article selected for [Physics Viewpoint](#)

[First Use of High Charge States for Mass Measurements of Short-lived Nuclides in a Penning Trap](#)

**S. Ettenauer**, M. C. Simon, A. T. Gallant, T. Brunner, U. Chowdhury, V. V. Simon, M. Brodeur, A. Chaudhuri, E. Mané, C. Andreoiu, G. Audi, J. R. Crespo López-Urrutia, P. Delheij, G. Gwinner, A. Lapierre, D. Lunney, M. R. Pearson, R. Ringle, J. Ullrich, and J. Dilling  
Phys. Rev. Lett. 107, 272501 (2011) ; article selected as an 'Editors' Suggestion'