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## **Mr. Richard Abram Baartman**

Correspondence language: English

Sex: Male

### **Contact Information**

The primary information is denoted by (\*)

#### **Address**

Home (\*)

14162 57a Ave  
Surrey British Columbia V3X2W4  
Canada

#### **Telephone**

Home (\*)                      604-599-0101

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## Mr. Richard Baartman

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### Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

### Degrees

- 1981/5      Master's Thesis, Physics, Simon Fraser University  
Supervisors: John Cochran, 1975/9 - 1979/12
- 1975/5      Bachelor's Honours, Mathematical Physics, Simon Fraser University

### User Profile

Research Specialization Keywords: dynamics fields

### Employment

- 1988/4      Head, Beam Physics  
Accelerator Division, TRIUMF  
Full-time, Professor  
Tenure Status: Tenure
- 1980/1      Research Scientist  
TRIUMF  
Design and develop charged particle accelerators and transport systems for scientific research and medical applications
- 2017/3 - 2019/8      Adjunct professor  
Department of Physics and Astronomy, University of Victoria  
Full-time, Adjunct  
Tenure Status: Non Tenure Track

### Research Funding History

#### Awarded [n=3]

- 2018/4 - 2021/3      Canada's Contribution to AWAKE, Grant  
Principal Applicant

#### Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)  
Subatomic Physics Envelope - Project  
Total Funding - 170,000  
Portion of Funding Received - 50,000

	Funding Competitive?: Yes
	Co-applicant : Robert Laxdal
2016/10 - 2018/3 Principal Applicant	AWAKE- Canada's contribution to the AWAKE project at CERN, Grant <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Total Funding - 286,000 Portion of Funding Received - 208,000 Funding Competitive?: Yes Co-applicant : Robert Laxdal
2011/4 - 2014/3 Principal Applicant	Cyclotron Physics, Grant <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Total Funding - 45,000 Portion of Funding Received - 45,000 Funding Competitive?: Yes

## Student/Postdoctoral Supervision

### Bachelor's [n=5]

2018/5 - 2018/9 Co-Supervisor	Adrian Pikor (In Progress) , Simon Fraser University Thesis/Project Title: M11 beam channel resurrection Present Position: Student, TRIUMF
2017/9 - 2018/5 Co-Supervisor	Daniel Sehayek (In Progress) , University of Waterloo Thesis/Project Title: <i>Implementation of the Phase Space Tomography Algorithm, Automatic Tuning Algorithm for the CANREB HRS Multipole, Combined Electrostatic Focusing and Deflection for the ARIEL Target Ion Source</i> Present Position: Student, University of Waterloo
2017/9 - 2017/12 Co-Supervisor	Matthew Henrique Pereira Wilson (In Progress) , University of Waterloo Thesis/Project Title: <i>Field Measurements of the CANREB Nier Dipole, Envelope calculations on the Ion Beam Injection and Extraction of CANREB EBIS</i> Present Position: Student, University of Waterloo
2017/1 - 2017/4 Co-Supervisor	Ryley Simpson (In Progress) , UBC Thesis/Project Title: <i>Permanent Magnet Solenoid-like Lens</i> Present Position: Student, UBC
2016/9 - 2016/12 Co-Supervisor	Samantha Marcano (In Progress) , University of Waterloo Thesis/Project Title: <i>Customizing Web Applications for Beam Tomography</i> Present Position: Student, University of Waterloo

### Master's Thesis [n=1]

2017/9 - 2019/5 Co-Supervisor	Paul Jung (In Progress) , University of Victoria Student Degree Expected Date: 2019/5 Thesis/Project Title: Space Charge Simulations of the Electron Gun Present Position: Research Associate, TRIUMF
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**Doctorate [n=3]**

- 2016/8 - 2018/8  
Principal Supervisor Carla Barquest, TRIUMF  
Thesis/Project Title: ARIEL Beam Physics  
Present Position: Post-Doc
- 2014/9 - 2018/3  
Co-Supervisor Marco Marchetto (Completed) , UBC  
Thesis/Project Title: Title: Magnetic Field Study for a New Generation High Resolution Mass Separator  
Present Position: Research Scientist, TRIUMF
- 2013/7 - 2016/7  
Principal Supervisor James Maloney, TRIUMF  
Thesis/Project Title: Optics Design of the CANREB High Resolution Separator  
Present Position: Professor, Dakota State University

**Event Administration**

- 2017/2 - 2018/6 Scientific Advisory Board member, 2018 International Particle Accelerator Conference, Conference, 2018/5 - 2018/6
- 2016/3 - 2017/12 Scientific Advisory Board member, 2017 International Conference on Ion Sources, Conference, 2017/9 - 2017/10
- 2011/10 - 2013/9 Scientific Program Committee Chair, 2013 International Cyclotron Conference, Conference, 2013/9 - 2013/9

**Organizational Review Activities**

- 2012/7 - 2017/7 expert reviewer, FermiLab  
Annual review of FNAL's Proton Improvement Plan Project. Specialist expertise: Beam dynamics and especially high intensity collective effects.

**International Collaboration Activities**

- 2013/3 - 2017/6 Reviewer, United States  
Machine Advisory Committee. This is a standing committee to review, annually the operation and future expansion at Fermilab.
- 2014/2 - 2014/2 design study, Switzerland  
Future Circular Collider Design Study, CERN
- 2012/3 - 2012/3 Reviewer, United States  
Review of the Project X Injector Experiment.

**Committee Memberships**

- 2009/1 - 2015/1 Committee Member, International Collaboration on Future Accelerators, Beam Dynamics Panel, ICFA, Beam Dynamics Panel

## Presentations

1. (2017). Low Energy Beam Transport. CERN Accelerator School, Erice, Italy  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
2. (2016). Fast Envelope Tracking for Space Charge Dominated Injectors. LINAC'16, East Lansing, United States  
Main Audience: Knowledge User  
Invited?: Yes, Keynote?: No
3. L.Merminga, F.Ames, P.Bricault, Y.Bylinski, YCChao, R.Dawson, D.Kaltchev, S.Koscielniak, R.Laxdal. (2015). Ariel: Triumf's advanced rare isotope laboratory. International Particle Accelerator Conference, San Sebastian, Spain  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
4. (2013). Review of space charge effects in cyclotrons. International Conference on Cyclotrons and their Applications, Vancouver, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
5. (2013). Optimal 3D Quadrupoles Shapes. North American Particle Accelerator Conference, Pasadena, United States  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No

## Publications

### Journal Articles

1. P. Muggli, E. Adli, R. Apsimon, F. Asmus, R. Baartman, A.-M. Bachmann, M. Barros Marin, F. Batsch, J. Bauche, V. K. Berglyd Olsen, M. Bernardini, B. Biskup, A. Boccardi, T. Bogey, T. Bohl, C. Bracco, F. Braunmuller, S. Burger, G. Burt, S. Bustamante, B. Buttenschon, A. Butterworth, A. Caldwell, M. Cascella, E. Chevallay, M. Chung, H. Damerau, L. Deacon, A. Dexter, P. Dirksen, S. Doebert, J. Farmer, V. Fedosseev, T. Feniet, G. Fior, R. Fiorito, R. Fonseca, F. Friebel, P. Gander, S. Gessner, I. Gorgisyan, A. A. Gorn, O. Grulke, E. Gschwendtner, A. Guerrero, J. Hansen, C. Hessler, W. Hofle, J. Holloway, M. H#uther, M. Ibison, M.R. Islam, L. Jensen, S. Jolly, M. Kasim, F. Keeble, S.-Y. Kim, F. Krause, A. Lasheen, T. Lefevre, G. LeGodec, Y. Li, S. Liu, N. Lopes, K. V. Lotov, M. Martyanov, S. Mazzoni, et al. (40 additional authors not shown). (2017). AWAKE readiness for the study of the seeded self-modulation of a 400 GeV proton bunch. Plasma Physics and Controlled Fusion. 60(1): 14046.  
Published  
Refereed?: Yes, Open Access?: Yes
2. JA Maloney, R Baartman, T Planche, S Saminathan. (2016). Electrostatic potential map modelling with COSY Infinity. Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms. 376: 171-174.  
Published  
Refereed?: Yes, Open Access?: No

3. V Anastassopoulos, S Andrianov, R Baartman, S Baessler, M Bai, J Benante, M Berz, M Blaskiewicz, T Bowcock, K Brown, B Casey, M Conte, JD Crnkovic, N D'Imperio, G Fanourakis, A Fedotov, P Fierlinger, W Fischer, MO Gaisser, Y Giomataris, M Grosse-Perdekamp, G Guidoboni, S Hacıomeröglü, G Hoffstaetter, H Huang, M Incagli, A Ivanov, D Kawall, YI Kim, B King, IA Koop, DM Lazarus, V Lebedev, MJ Lee, S Lee, YH Lee, A Lehrach, P Lenisa, P Levi Sandri, AU Luccio, A Lyapin, W MacKay, R Maier, K Makino, N Malitsky, WJ Marciano, W Meng, F Meot, EM Metodiev, L Miceli, D Moricciani, WM Morse, S Nagaitsev, SK Nayak, YF Orlov, CS Ozben, ST Park, A Pesce, E Petrakou, P Pile, B Podobedov, V Polychronakos, J Pretz, V Ptitsyn, E Ramberg, D Raparia, F Rathmann, S Rescia, T Roser, H Kamal Sayed, YK Semertzidis, Y Senichev, A Sidorin, A Silenko, N Simos, A Stahl, EJ Stephenson, H Ströher, MJ Syphers, J Talman, RM Talman, V Tishchenko, C Touramanis, N Tsoupas, G Venanzoni, K Vetter, S Vlassis, E Won, G Zavata. (2016). A storage ring experiment to detect a proton electric dipole moment. *Review of Scientific Instruments*. 87(11)  
Published  
Refereed?: Yes, Open Access?: No
4. JA Maloney, R Baartman, M Marchetto. (2016). New design studies for TRIUMF's ARIEL High Resolution Separator. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*. 376: 135-139.  
Published  
Refereed?: Yes, Open Access?: No
5. F Ames, R Baartman, P Bricault, K Jayamanna. (2014). Charge state breeding of radioactive isotopes for ISAC. *Hyperfine Interactions*. 2(1-3): 63-67.  
Published  
Refereed?: Yes, Open Access?: No
6. T Kurtukian-Nieto, R Baartman, B Blank, T Chiron, C Davids, F Delalee, M Duval, S El Abbeir, A Fournier, D Lunney, F Méot, L Serani, M-H Stodel, F Varenne, H Weick. (2013). SPIRAL2/DESIR high resolution mass separator. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*. 317: 284-289.  
Published  
Refereed?: Yes, Open Access?: No
7. Richard Baartman. (2012). Quadrupole shapes. *Phys Rev Special Topics Accelerators and Beams*. 15: 074002–074011.  
Published  
Refereed?: Yes, Open Access?: Yes

## Book Chapters

1. Richard Baartman. (2013). ISAC LEBT. Jens Dilling, Reiner Krücken, Lia Merminga. *ISAC and ARIEL: The TRIUMF Radioactive Beam Facilities and the Scientific Program*. : 69-77.  
Published, Springer  
Refereed?: Yes
2. M. Marchetto, R. A. Baartman, R. E. Laxdal. (2013). ARIEL front end. Jens Dilling, Reiner Krücken, Lia Merminga. *ISAC and ARIEL: The TRIUMF Radioactive Beam Facilities and the Scientific Program*. : 275-282.  
Published, Springer  
Refereed?: Yes
3. F. Ames, R. Baartman, P. Bricault, K. Jayamanna. (2013). Charge state breeding of radioactive isotopes for ISAC. Jens Dilling, Reiner Krücken, Lia Merminga. *ISAC and ARIEL: The TRIUMF Radioactive Beam Facilities and the Scientific Program*. : 63-67.  
Published, Springer  
Refereed?: Yes

**Conference Publications**

1. D Sehayek, R Baartman, C Barquest, Maloney, M Marchetto, T Planche. (2018). Multipole Tuning Algorithm for the CANREB HRS at TRIUMF. International Particle Accelerator Conference, Vancouver, Canada  
Paper  
Published  
Refereed?: No, Invited?: No
2. M Pereira-Wilson, R Baartman, S Saminathan. (2018). Envelope Calculations on the Ion Beam Injection and Extraction of CANREB EBIS. International Particle Accelerator Conference, Vancouver, Canada  
Paper  
Published  
Refereed?: No, Invited?: No
3. Y-N Rao, R Baartman, T Planche. (2018). Correction of  $\nu_r-\nu_z=1$  Resonance in TRIUMF Cyclotron. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No
4. Y Bylinskii, R Baartman, P Dirksen, YN Rao, V Verzilov. (2018). Recent Developments for Cyclotron Extraction Foils at TRIUMF. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No
5. Edward Thoeng, Richard Baartman, Robert Laxdal, B. Matheson, G. Morris, N. Muller, S. Saminathan, A. Chen, T. Junginger. (2018). Beta-SRF - A New Facility to Characterize SRF Materials near Fundamental Limits. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No
6. YN Rao, R Baartman, Y Bylinskii, FW Jones. (2018). New Proton Driver Beamline Design for ARIEL Project at TRIUMF. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No
7. Y-N Rao, R Baartman, T Planche. (2018). Improved Simulation for Centre Region of TRIUMF 500 MeV Cyclotron with Space Charge. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No
8. K Jayamanna, R Baartman, Y Bylinskii, T Planche, M Corwin, R Simpson. (2018). Single Ring Permanent Magnet Lens. International Particle Accelerator Conference, Vancouver, Canada  
Conference Date: 2018/5  
Paper  
Published  
Refereed?: No, Invited?: No

9. Suresh Saminathan, Richard Baartman. (2017). On the Ariel Pre-Separator. 8th Int. Particle Accelerator Conf.,  
Paper  
In Press  
Refereed?: No, Invited?: No
10. Frederick Jones, Richard Baartman, Iouri Bylinskii, Yi-Nong Rao. (2017). Simulation Study of Halo Collimation in the TRIUMF Ariel Proton Beam Line. 8th Int. Particle Accelerator Conf.,  
Paper  
In Press  
Refereed?: No, Invited?: No
11. Thomas Planche, Richard Baartman, Iouri Bylinskii, Yi-Nong Rao. (2017). Space-charge Simulation of TRIUMF 500 MeV Cyclotron. 21st Int. Conf. on Cyclotrons and Their Applications,  
Paper  
Published  
Refereed?: No, Invited?: No
12. Thomas Planche, Martin Alcorta, Friedhelm Ames, Richard Baartman, Carla Barquest, Brandon Humphries, Paul Jung, Dobrin Kaltchev, Shane Koscielniak, Robert Laxdal, Yanyun Ma, Marco Marchetto, Suresh Saminathan, Edward Thoeng. (2017). Commissioning and Early Operation of the ARIEL e-Linac. 28th Linear Accelerator Conf.,  
Paper  
Published  
Refereed?: No, Invited?: Yes
13. Marco Marchetto, Tom Alderson, Friedhelm Ames, Richard Baartman, Jason Chak, Paul Dirksen, Tim Emmens, Geoff Hodgson, Tomislav Hruskovec, Mark Ilagan, Robert Laxdal, Norman Muller, Doug Preddy, Daniel Rowbotham, Suresh Saminathan, Quinn Temmel, Victor Verzilov, Dimo Yosifov. (2017). The ARIEL Radioactive Ion Beam Transport System. 28th Linear Accelerator Conf.,  
Paper  
Published  
Refereed?: No, Invited?: No
14. Richard Baartman. (2017). Fast Envelope Tracking for Space Charge Dominated Injectors. 28th Linear Accelerator Conf.,  
Paper  
Published  
Refereed?: No, Invited?: Yes
15. Aurelia Laxdal, Richard Baartman, Iouri Bylinskii, G Ganesh, Frederick Jones, Thomas Planche, Ayanangsha Sen. (2017). Recirculating Electron Beam Photo-converter for Rare Isotope Production. 21st Int. Conf. on Cyclotrons and Their Applications,  
Paper  
Published  
Refereed?: No, Invited?: No
16. Iouri Bylinskii, Richard Baartman, Keerthi Jayamanna, Thomas Planche, Yi-Nong Rao. (2017). Recent Improvements in Beam Delivery with the TRIUMF's 500 MeV Cyclotron. 21st Int. Conf. on Cyclotrons and Their Applications,  
Paper  
Published  
Refereed?: No, Invited?: No



17. Aurelia Laxdal, Richard Baartman, Iouri Bylinskii, Sriram Ganesh, Alexander Gottberg, Frederick Jones, Peter Kunz, Luis Lopera, Thomas Planche, Ayanangsha Sen. (2017). Recirculated Electron Beam Photo-Converter for Rare Isotope Production. 8th Int. Particle Accelerator Conf., Paper  
In Press  
Refereed?: Yes, Invited?: No
18. Marchetto, Ames, Ang, Baartman, Bylinskii, Chao, Dale, Fong, Iranmanesh, Jones, Kaltchev, Kavarskas, Kolb, Koscielniak, Koveshnikov, Lavery, Laxdal, Merminga, Muller, Nagimov, Nussbaumer, Planche, Rowe, Saminathan, Verzilov, Yao, Zheng, Zvyagintsev. (2015). Commissioning and Operation of the ARIEL Electron Linac at TRIUMF. International Particle Accelerator Conference, Richmond, United States  
Paper  
Published  
Refereed?: No, Invited?: Yes
19. R.E. Laxdal, F. Ames, R.A. Baartman, I.V. Bylinskii, Y.-C. Chao, D. Dale, K. Fong, E.R. Guetre, P. Kolb, S.R. Koscielniak, A. Koveshnikov, M.P. Lavery, Y. Ma, M. Marchetto, L. Merminga, A.K. Mitra, N. Muller, R.R. Nagimov, T. Planche, W.R. Rawnsley, V.A. Verzilov, Z.Y. Yao, Q. Zheng, V. Zvyagintsev [TRIUMF, Canada's National Laboratory for Particle and Nuclear Physics, Vancouver, Canada]. (2015). Status of Superconducting Electron Linac Driver for Rare Ion Beam Production at TRIUMF. LINAC2014, geneva, Switzerland  
Conference Date: 2014/8  
Paper  
Published  
Refereed?: No, Invited?: Yes
20. A. Laxdal, F. Ames, R.A. Baartman, W.R. Rawnsley, A. Sen, V.A. Verzilov, G. Waters. (2015). Allison Scanner Emittance Diagnostic Development at TRIUMF. LINAC2014, geneva, Switzerland  
Conference Date: 2014/8  
Paper  
Published  
Refereed?: No, Invited?: No
21. R. Baartman. (2014). Space Charge Limit in Separated Turn Cyclotrons. Cyclotrons2013, vancouver, Canada  
Conference Date: 2013/9  
Paper  
Published  
Refereed?: No, Invited?: Yes
22. T. Planche, R.A. Baartman, Y.-N. Rao. (2014). Measurement of Turn Structure in the Central Region of TRIUMF Cyclotron. Cyclotrons2013, vancouver, Canada  
Conference Date: 2013/9  
Paper  
Published  
Refereed?: No, Invited?: No
23. Y.-N. Rao, R.A. Baartman, I.V. Bylinskii, V.A. Verzilov. (2014). TRIUMF Extraction Foil Developments and Contamination Reduction. Cyclotrons2013, vancouver, Canada  
Conference Date: 2013/9  
Paper  
Published  
Refereed?: No, Invited?: No

24. T. Planche, R.A. Baartman, Y.-N. Rao. (2014). Improvement of the Current Stability from the TRIUMF Cyclotron. Cyclotrons2013, vancouver, Canada  
Conference Date: 2013/9  
Paper  
Published  
Refereed?: No, Invited?: No
25. R.A. Baartman. (2013). Optimal 3D Quadrupoles Shapes. NA-PAC13 (North American Particle Accelerator Conf.), pasadena, United States  
Conference Date: 2013/9  
Paper  
Published  
Refereed?: No, Invited?: Yes
26. J. Borburgh, B. Balhan, W. Bartmann, T. Fowler, L. Sermeus, G. Vanbavinckhove [CERN, Geneva, Switzerland] R.A. Baartman [TRIUMF, Vancouver, Canada] D. Barna [University of Tokyo, Tokyo, Japan] V. Pricop [Transilvania University of Brasov, Brasov, Romania] . (2013). Concept for Elena Extraction and Beam Transfer Elements. 4th International Particle Accelerator Conference, Shanghai,  
Conference Date: 2013/5  
Paper  
Published  
Refereed?: No, Invited?: No
27. G. Vanbavinckhove, W. Bartmann, F. Butin, O. Choisset [CERN, Geneva, Switzerland] R.A. Baartman [TRIUMF, Vancouver, Canada] D. Barna, H. Yamada [University of Tokyo, Tokyo, Japan]. (2013). Geometry and Optics of the Electrostatic ELENA Transfer Lines. 4th International Particle Accelerator Conference, Shanghai,  
Conference Date: 2013/5  
Paper  
Published  
Refereed?: No, Invited?: No
28. S.R. Koscielniak, F. Ames, R.A. Baartman, I.V. Bylinskii, Y.-C. Chao, D. Dale, R.J. Dawson, E.R. Guetre, N. Khan, A. Koveshnikov, A. Laxdal, R.E. Laxdal, F. Mammarella, M. Marchetto, L. Merminga, A.K. Mitra, T. Planche, Y.-N. Rao, A. Sitnikov, V.A. Verzilov, D. Yosifov, V. Zvyagintsev [TRIUMF, Vancouver, Canada] D. Karlen, R.R. Langstaff [Victoria University, Victoria, B.C., Canada]. (2013). ARIEL Superconducting Electron Linac. LINAC2012, Tel Aviv, Israel  
Conference Date: 2012/9  
Paper  
Published  
Refereed?: No, Invited?: Yes
29. A. Chakrabarti, S. Dechoudhury, V. Naik [VECC, Kolkata, India] F. Ames, R.A. Baartman, Y.-C. Chao, R.E. Laxdal, M. Marchetto, L. Merminga, F. Yan [TRIUMF, Vancouver, Canada] G. Goh [SFU, Burnaby, BC, Canada]. (2012). Beam Dynamics Simulation and Optimization for 10 MeV Superconducting e-Linac Injector for VECC-RIB Facility. LINAC2012, Tel Aviv, Israel  
Conference Date: 2012/9  
Paper  
Published  
Refereed?: No, Invited?: No
30. T. Planche, R.A. Baartman, Y.-N. Rao. (2012). Correction of the  $n_{ur}=3/2$  Resonance in TRIUMF Cyclotron. IPAC 2012, New Orleans, United States  
Conference Date: 2012/5  
Paper  
Published  
Refereed?: No, Invited?: No

31. R. Baartman. (2012). Quadrupole Shapes. IPAC 2012, New Orleans, United States  
Conference Date: 2012/5  
Paper  
Published  
Refereed?: No, Invited?: No
32. S.R. Koscielniak, F. Ames, R.A. Baartman, I.V. Bylinskii, Y.-C. Chao, D. Dale, R.J. Dawson, A. Kovesnikov, A. Laxdal, R.E. Laxdal, F. Mammarella, L. Meringa, A.K. Mitra, Y.-N. Rao, V.A. Verzilov, D. Yosifov, V. Zvyagintsev. (2012). Electron Linac Photo-fission Driver for the Rare Isotope Program at TRIUMF. 2012 IPAC, New Orleans, United States  
Conference Date: 2012/5  
Paper  
Published  
Refereed?: No, Invited?: No

## Intellectual Property

### Patents

1. Single ring permanent magnet lens. Canada.  
Patent Status: Allowed  
Inventors: R. Baartman, Y. Bylinski, K. Jayamanna, T. Planche