

BAARTMAN, Richard A.

Most Significant Research Contributions of last 6 years.

Employment History

2005-present Head, Accelerator Physics group, TRIUMF

Awards, Committees, Service to the community

2006-2009 Member, Editorial Board, Physical Review Special Topics - Accelerators and Beams
2008 Convener, Beam Dynamics session, HB2008
2008-2009 Program Committee PAC09 (BDEMF session chair)
2009-2012 Vice-Chair, Publications Committee of the Division of Physics of Beams, APS
2009- Member, Int. Collaboration on Future Accelerators (ICFA) Beam Dynamics Panel
2009 Award: Fellow, American Physical Society
2009 Invited talk, DESIR High Resolution Separator Workshop
2010 Invited talk, Daedalus Workshop on MegaWatt Cyclotrons, MIT
2011 Award: Outstanding Referee, American Physical Society
2011 Appointment to Program Committee Chair, Int. Cyclotron Conference 2013

(not uptodate)

Participated in the Proton EDM international collaboration, in particular the theory of completely electrostatic storage rings[2].

Invited talk on space charge in cyclotrons at the 2013 international Cyclotron Conference[6].

Head of the design team of the CANREB High Resolution Separator[4].

Member of team designing a megawatt-class electron accelerator. [17] Oversee beam dynamics issues, and have contributed personally to the theory of electron envelopes from rest[15], and for the linac[1], the optics layout of the low energy section, and quadrupole design[16]. As a result of this work, have devised a new method of calculating optimal pole shapes of standard charged particle focusing elements (quadrupoles)[12]. This resulted in an invited talk at the 2013 North American Particle Accelerator Conference. Used this method to design the 77 quadrupoles for the transport of electrons from the ARIEL electron linac to the targets.

Aided in the design of transfer lines for the CERN ELENA project[7, 11], and in the design of the high resolution separator for the GANIL DESIR project[8]

Used this technique to design a new vertical section of the beam line between the ion source and matching to the cyclotron. This line is 12 m in length and contains 26 quadrupoles. It has been installed, commissioned, and performs in agreement with theory.[14]

References

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- [2] EDM Collaboration. A storage ring experiment to detect a proton electric dipole moment. Technical report, 2015.
- [3] Richard Baartman. Isac lebt. In *ISAC and ARIEL: The TRIUMF Radioactive Beam Facilities and the Scientific Program*, pages 69–77. Springer Netherlands, 2014.
- [4] J Maloney, M Marchetto, and R Baartman. Tri-dn-14-06: Ariel high resolution separator, 2014.
- [5] M Marchetto, RA Baartman, and RE Laxdal. Ariel front end. In *ISAC and ARIEL: The TRIUMF Radioactive Beam Facilities and the Scientific Program*, pages 275–282. Springer Netherlands, 2014.
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- [8] T Kurtukian-Nieto, R Baartman, B Blank, T Chiron, C Davids, F Delalee, M Duval, S El Abbeir, A Fournier, D Lunney, et al. Spiral2/desir high resolution mass separator. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 317:284–289, 2013.
- [9] YN Rao, R Baartman, I Bylinskii, and S Koscielniak. Tri-dn-13-13: Beam line 4 north (bl4n) optics design, 2013.
- [10] S Saminathan and R Baartman. Tri-bn-13-02: A report on the beam development test conducted for β nmr/ β nqr beamline, 2013.
- [11] Vanbavinckhove, Bartmann, Butin, Choynet, Baartman, Barna, and Yamada. Geometry and optics of the electrostatic elena transfer lines. In *IPAC13*, 2013.
- [12] R. Baartman. Quadrupole shapes. *Phys Rev Special Topics Accelerators and Beams*, 15:074002–074011, 2012.
- [13] R Baartman. Tri-bn-12-07: Emittance growth due to gas scattering, 2012.
- [14] R. Baartman, F. Bach, I. Bylinskii, R. Laplante, Yi-Nong Rao, and Roman Ruegg. Commissioning the TRIUMF 300 keV H^- Vertical Injection Line. In *Proc. International Particle Accelerator Conference*, 2011.
- [15] R. Baartman. Bunch dynamics through accelerator column. In *Proceedings of IPAC*, 2011.
- [16] R. Baartman. Quads for ariel electrons. Technical report, Technical Report TRI-BN-11-02, TRIUMF, 2011.

- [17] L. Merminga, F. Ames, R. Baartman, P. Bricault, Y. Bylinski, YC Chao, R. Dawson, D. Kaltchev, S. Koscielniak, R. Laxdal, et al. Ariel: Triumf's advanced rare isotope laboratory. In *IPAC'11, San Sebastian, Spain*, 2011.
- [18] R.A. Baartman, F.W. Bach, I.V. Bylinskii, J.F. Cessford, G. Dutto, D.T. Gray, A. Hurst, K. Jayamanna, M. Mouat, Y.-N. Rao, W.R. Rawsley, L.W. Root, R. Rugg, and V.A. Verzilov. Reliable Production of Multiple High Intensity Beams with the 500 MeV TRIUMF Cyclotron. In *Cyclotrons and Their Application, Lanzhou, China*, 2010.