

Technical Writings*

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Contributions to International Reports:

1. ..., A. Sameen KHAN, ..., (*one of the 300+ Contributors, from 73 Institutions*),
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2. ..., Sameen Ahmed KHAN, ..., (*one of the 500+ Contributors, from 121 Institutions*),
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<http://arxiv.org/abs/0712.2361/> and <http://arxiv.org/abs/0712.2356/>.
5. ..., Sameen Ahmed KHAN, ..., (*one of the Signatories*),
Letter of Intent (LOI), **The International Large Detector Letter of Intent**,
ILD Concept Group, International Linear Collider (ILC)
DESY 2009-87, FERMILAB-PUB-09-682-E, KEK Report 2009-6, (February 2010).
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6. ..., S. A. KHAN, ..., (*one of the 2400 Signatories, from 408 Institutions*),
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ILC: International Linear Collider.
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E-Print arXiv: <http://arxiv.org/abs/1306.6327/>, <http://arxiv.org/abs/1306.6352/>,
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Lecture Notes:

1. Sameen Ahmed Khan,
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Muscat, Sultanate of Oman (2005). <http://www.mecit.edu.om/>.
The Notes cover the *Foundation Mathematics* and the Three-Semester Sequence of *Engineering Mathematics*, *College Mathematics*, *Calculus with Numerical Methods* and *Advanced Calculus*.
2. Sameen Ahmed Khan,
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Lecture Notes in Physics,
Salalah College of Technology E-Learning Website,
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<http://www.sct.edu.om/>, (2010).
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A. Books

1. Sameen Ahmed Khan,
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2. Sameen Ahmed Khan,
Introductory Physics Laboratory Manual,
LAP LAMBERT Academic Publishing, Germany (Wednesday the 19 August 2015),
168 pages. <http://www.lap-publishing.com/>, <http://isbn.nu/9783659771897/>.
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3. Sameen Ahmed Khan,
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408 pages. <http://www.lap-publishing.com/>, <http://isbn.nu/9783659786198/>.
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B. Review Articles and Book Chapters

1. R. Jagannathan and S. A. Khan,
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3. Sameen Ahmed Khan,
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Chapter-6 in:
New Topics in Quantum Physics Research,
Editors: Volodymyr Krasnoholovets and Frank Columbus,
(Nova Science Publishers, New York, 2006, <http://www.novapublishers.com/>).
pp. 163-204 (30 December 2006).
(ISBN-10: 1600210287 and ISBN-13: 978-1600210280).
4. Sameen Ahmed Khan,
The Foldy-Wouthuysen Transformation Technique in Optics,
Chapter-2 in:
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5. Sameen Ahmed Khan,
Number Theory and Resistor Networks,
Chapter-5 in:
Resistors: Theory of Operation, Behavior and Safety Regulations,
Editor: Roy Abi Zeid Daou,
(Nova Science Publishers, New York, 2013, <http://www.novapublishers.com/>).
pp. 99-154 (May 2013).
(Hard Cover: pp. 99-154, ISBN-10: 1622577884 and ISBN-13: 978-1-62257-788-0).
(ebook: pp. 99-154, ISBN-10: 1626187959 and ISBN-13: 978-1-62618-795-5).
6. Sameen Ahmed Khan,
Coordinate Geometric Generalization of the Spherometer and Cylindrometer,
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7. Sameen Ahmed Khan,
International Year of Light and History of Optics,
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(Nova Science Publishers, New York, 2016, <http://www.novapublishers.com/>).
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(Hard Cover: pp. 1-56, ISBN-10: 163484498X and ISBN-13: 978-1-63484-498-7).
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<https://www.crcpress.com/Encyclopedia-of-Plasma-Technology/Shohet/9781466500594>.

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 (Hard Cover: pp. 123-178, ISBN-10: 1536125156 and ISBN-13: 978-1-53612-515-3).
 (ebook: pp. 123-178, ISBN-10: 1-5361-2544-X and ISBN-13: 978-1-53612-544-3).

C. Refereed Publications

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2. M. Conte, R. Jagannathan, S. A. Khan and M. Pusterla,
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<http://cds.cern.ch/record/307931/files/p99.pdf>
3. S. A. Khan and M. Pusterla,
Quantum-like approach to the transversal and longitudinal beam dynamics. The halo problem,
European Physical Journal A **7**(4), 583-587 (2000).
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5. Sameen Ahmed Khan and Kurt Bernardo Wolf,
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<http://dx.doi.org/10.1364/JOSAA.19.002436>.
6. Sameen Ahmed Khan,
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7. Sameen Ahmed Khan,
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<http://dx.doi.org/10.1007/s12044-012-0066-7>;
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12. Sameen Ahmed Khan,
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13. Sameen Ahmed Khan and Farooq Ahmed Khan,
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14. Sameen Ahmed Khan,
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15. Sameen Ahmed Khan,
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18. Sameen Ahmed Khan,
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19. Sameen Ahmed Khan,
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22. Sameen Ahmed Khan,
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Elsevier, <https://doi.org/10.1016/j.ijleo.2017.10.006>.
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23. Sameen Ahmed Khan and Modesto Pusterla,
On the form of Lorentz-Stern-Gerlach force,
10 pages, (*communicated*).
24. Sameen Ahmed Khan, Ramaswamy Jagannathan and Rajiah Simon,
Foldy-Wouthuysen transformation and a quasiparaxial approximation scheme for the scalar wave theory of light beams,
14 pages, (*communicated*).
25. Ramaswamy Jagannathan and Sameen Ahmed Khan,
Quantum Mechanics of Charged Particle Beam Optics,
(*in preparation*).
26. Sameen Ahmed Khan and Ramaswamy Jagannathan,
Quantum Methodologies in Light Beam Optics,
(*in preparation*).
27. Sameen Ahmed Khan and Ramaswamy Jagannathan,
Quantum Methodology Approach to Light Beam Optics,
(*in preparation*).
28. Sameen Ahmed Khan,
Wavelength-dependent modifications in Maxwell Optics,
59 pages, (*in preparation*).

The corrections to the traditional descriptions rigorously derived in the above articles have a significant bearing on the celebrated Scherzer Theorem in the wavelength-dependent regime in electron microscopy and the algebraically equivalent system of fiber optics. An application shall be made for a patent in the near future!

D. E-Prints[†] <http://arXiv.org/>

1. Sameen Ahmed Khan,
An alternate way to obtain the aberration expansion in Helmholtz Optics,
40 pages, *E-Print arXiv*: <http://arXiv.org/abs/physics/0210001/>.
2. Sameen Ahmed Khan,
Maxwell Optics: I. An exact matrix representation of the Maxwell equations in a medium,
10 pages, *E-Print arXiv*: <http://arXiv.org/abs/physics/0205083/>.
3. Sameen Ahmed Khan,
Maxwell Optics: II. An Exact Formalism,
23 pages, *E-Print arXiv*: <http://arXiv.org/abs/physics/0205084/>.
4. Sameen Ahmed Khan,
Maxwell Optics: III. Applications,
13 pages, *E-Print arXiv*: <http://arXiv.org/abs/physics/0205085/>.
5. Sameen Ahmed Khan,
Wavelength-Dependent Effects in Maxwell Optics,
58 pages, *E-Print arXiv*: <http://arXiv.org/abs/physics/0210027/>.
6. Sameen Ahmed Khan,
The bounds of the set of equivalent resistances of n equal resistors combined in series and in parallel,
37 pages, *E-Print archive arXiv*: <http://arxiv.org/abs/1004.3346/>.
(Wednesday the 21 April 2010).
7. Sameen Ahmed Khan,
Primes in Geometric-Arithmetic Progression,
19 pages, *E-Print archive arXiv*: <http://arxiv.org/abs/1203.2083>.
(Friday the 09 March 2012).
8. Sameen Ahmed Khan,
Coordinate Geometric Generalization of the Spherometer and Cylindrometer,
35 pages, *E-Print archive arXiv*: <http://arxiv.org/abs/1311.3602/>.
(Thursday the 14 November 2013).
9. Sameen Ahmed Khan,
A Statistical Approach to Prime Gaps and Andrica's Conjecture,
9 pages, *E-Print arXiv*: <https://arxiv.org/abs/1702.08547>.
(Tuesday the 14 February 2017).

E. In Proceedings & Preprints

1. S. A. Khan and R. Jagannathan,
Theory of relativistic electron beam transport based on the Dirac equation,
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Editor: S. N. Chintalapudi (IUC-DAEF, Kolkata (Calcutta)), pp. 102-107 (1996).
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[†]These E-Prints are being rewritten as long *Reports* or/and *Review Articles*

2. S. A. Khan and R. Jagannathan,
Quantum mechanics of charged particle beam optics: An operator approach,
Preprint: IMSc-94/11 Presented at the **JSPS-KEK** International Spring School on High Energy Ion Beams — Novel Beam Techniques and their Applications, Japan, 17-29 March 1994.
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3. S. A. Khan,
Transport of Dirac-particle beams through magnetic quadrupoles,
Preprint: IMSc/96/33 (The Institute of Mathematical Sciences, Chennai (Madras), December 1996).
4. R. Jagannathan and S. A. Khan,
Quantum mechanics of accelerator optics,
ICFA Beam Dynamics Newsletter, **13**, pp. 21-27 (April 1997).
(**ICFA**: International Committee for Future Accelerators).
5. S. A. Khan,
Quantum theory of magnetic quadrupole lenses for spin- $\frac{1}{2}$ particles,
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Editor: Pisin Chen, (World Scientific, Singapore, 1999), pp. 682-694 (1999).
6. Sameen A. Khan,
Quantum aspects of accelerator optics,
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(IEEE Catalogue Number: 99CH36366), Vol. 4, pp. 2817-2819 (1999).
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(World Scientific, Singapore, May 2002), pp. 517-526 (2002).
10. Sameen Ahmed Khan,
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AIP Conference Proceedings, 1742, 030008-1–030008-4 (10 June 2016). (American Institute of Physics); <http://dx.doi.org/10.1063/1.4953129>.

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F. Expository Publications

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Resonance Journal of Science Education, **6** (11), 77-84 (November 2001).
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2. Sameen Ahmed Khan,
Introduction to Synchrotron Radiation,
Bulletin of the IAPT, **19** (5), 149-153 (May 2002).
(**IAPT**: Indian Association of Physics Teachers).
3. Sameen Ahmed Khan,
Electron Beams for Radiation,
Kiran, **13** (3), 40-42 (July 2002).
(**Kiran**: the Bulletin of the Indian Laser Association).
4. Sameen Ahmed Khan,
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ATIP Report No. **ATIP02.034**, 28 pages (21 August 2002).
(**ATIP**: The Asian Technology Information Program, Tokyo, Japan, 2002).
5. Azher Majid Siddiqui and Sameen Ahmed Khan,
Ion Beam Channeling and Accelerator Programmes in India,
MRSI Newsletter, Vol. **B 02**, Number 4, pp. 3-5 (October 2002).
(**MRSI**: Materials Research Society of India).
6. Fathiya Khamis Al Rawahi, Sameen Ahmed Khan and Abdul Huq,
Microsoft Excel in the Mathematics Classroom: A Case Study,
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The Petroleum Institute, Abu Dhabi, United Arab Emirates, 14-16 March 2006.
Editors: Seán M. Stewart, Janet E. Olearski and Douglas Thompson, pp. 131-134 (2006).
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8. Sameen Ahmed Khan,
Data Analysis Using Microsoft Excel in the Physics Laboratory,
Bulletin of the IAPT, **24** (6), 184-186 (June 2007).
(**IAPT**: Indian Association of Physics Teachers).

9. Sameen Ahmed Khan,
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Bulletin of the IAPT, **26** (1), 4-6 (January 2009).
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10. Sameen Ahmed Khan,
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Bulletin of the IAPT, **2** (11), 327-330 (November 2010).
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G. Articles in Preparation

- Ramaswamy Jagannathan and Sameen Ahmed Khan,
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A quantum mechanical formalism for studying the transport of Dirac-particle beams through magnetic optical elements in accelerators.
- S. A. Khan,
Anomalous moments ... Thomas-BMT ...
- S. A. Khan and R. Jagannathan,
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A diffraction model for the beam halo problem.
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Integer Sequences

<http://www.research.att.com/~njas/sequences/>, <http://NeilSloane.com/>
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N. J. A. Sloane (*Editor*), *The On-Line Encyclopedia of Integer Sequences*, published electronically at: <http://oeis.org/> (2012).
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Patents

1. Sameen Ahmed Khan,
Quadricmeter,
Official Journal of the Patent Office, Issue No. **43/2008**, Part-I, pp. 25296 (24 October 2008).
 Application No.: **2126/MUM/2008 A**, International Classification: **B69G1/36**,
 Controller General of Patents Designs and Trade Marks, Government of India.

http://ipindia.nic.in/ipr/patent/journal_archieve/journal_2008/patent_journal_2008.htm

http://ipindia.nic.in/ipr/patent/journal_archieve/journal_2008/pat_arch_102008/official_jour

<http://www.patentoffice.nic.in/>, <http://www.ipindia.nic.in/>

(*patent in process*, <http://SameenAhmedKhan.webs.com/quadricmeter.html>).

Quadricmeter is the instrument devised to identify (distinguish) and measure the various parameters (axis, foci, latera recta, directrix, etc.,) completely characterizing the important class of surfaces known as the quadratic surfaces. Quadratic surfaces (also known as quadrics) include a wide range of commonly encountered surfaces including, cone, cylinder, ellipsoid, elliptic cone, elliptic cylinder, elliptic hyperboloid, elliptic paraboloid, hyperbolic cylinder, hyperbolic paraboloid, paraboloid, sphere, and spheroid. Quadricmeter is a generalized form of the conventional spherometer and the lesser known cylindrometer (also known as the Cyllindro-Spherometer). With a conventional spherometer it was possible only to measure the radii of spherical surfaces. Cylindrometer can measure the radii of curvature of a cylindrical surface in addition to the spherical surface. In both the spherometer and the cylindrometer one assumes the surface to be either spherical or cylindrical respectively. In the case of the quadricmeter, there are no such assumptions.

2. Sameen Ahmed Khan,
Conicmeter.
(patent in process, <http://SameenAhmedKhan.webs.com/conicmeter.html>).