

Résumé*

Sameen Ahmed Khan, Ph.D

Assistant Professor,

Department of Mathematics and Sciences, College of Arts and Applied Sciences (CAAS)

Dhofar University

Post Box No. 2509, Postal Code: 211, **Salalah, Sultanate of Oman**

rohelakhan@yahoo.com

<http://www.du.edu.om/>

GSM: +968-9953XXXX

<http://www.scopus.com/authid/detail.url?authorId=8452157800>

<http://sites.google.com/site/rohelakhan/>

CAREER OBJECTIVE: Faculty Member in Departments of Physics or Mathematics in Universities, Institutes of Technology or Engineering Colleges with teaching and research in Physics or Mathematics.

EDUCATION

Ph.D (Mathematical Physics), The Institute of Mathematical Sciences, Madras, India (1991-1997).

Dissertation: Development of quantum mechanical treatment for the study of transport of charged-particle beams through electromagnetic systems.

Advisor: Professor Ramaswamy Jagannathan.

M.Sc. (Physics), Indian Institute of Technology (IIT), Kanpur, India (1988-1990).

B.Sc. Honors (Physics), Osmania University, Hyderabad, India (1985-1988).

Computer Experience: Familiar with UNIX/LINUX, Mathematica, LaTeX, Microsoft Office, and basic Web-Designing.

TEACHING EXPERIENCE

Full-time Lecturer Dhofar University, Salalah, Sultanate of Oman, 2015 – Present.

Salalah College of Technology, **SCOT**, May-2006 – 2015.

Middle East College of Information Technology, **MECIT**, 2003-2006.

Mathematics Teaching: Foundation Mathematics, Statistics, College Mathematics, Calculus with Numerical Methods, Advanced Calculus and Engineering Mathematics

Physics Teaching: Physics-1 for Engineering, Physics-2 for Engineering, Physics, Engineering Mechanics and Engineering Physics.

Other activities

- Drafted the syllabus for the new Bachelor of Science Programme.
- Set up the Department Homepage on the College Intranet, which contains in-house prepared *Lecture Notes* and *Question Banks*, meeting most of the requirements of all the courses offered by the department.
- Conducted the *first* Mathematics Olympiad in the College on 26 May 2004.
- Served on College Committees: *Disciplinary Committee*, *Journal Committee*, *Library Committee*, *Web-Site Committee*, *Prizes and Awards Committee*, and *Accreditation Steering Committee*.

RESEARCH EXPERIENCE

1. *CONACYT-UNAM Postdoctoral Fellow*, Centro de Ciencias Físicas, Universidad Nacional Autónoma de México, Cuernavaca, MÉXICO (October 2001 — October 2002).

Advisor: Professor Kurt Bernardo Wolf.

Research: Unified treatment of light beam optics and polarization.

2. *INFN Post-Doctoral Fellow*, Istituto Nazionale di Fisica Nucleare (INFN), Dipartimento di Fisica Galileo Galilei, Università di Padova, ITALY (October 1997 — October 1999).

Advisor: Professor Modesto Pusterla.

Research: Beam Halo Problem.

3. **Independent Research** (see peer-reviewed publications, 6-12, 14-16 and the 5 Book-Chapters).

* Updated on Friday the 24 March 2017.

<http://SameenAhmedKhan.webs.com/>

HONORS AND AWARDS

Mathematics Olympiads: Won the State Level Mathematics Olympiads at: Junior Level (1983), Senior Level (1985) and Undergraduate Level (1986 to 1988), conducted by The Andhra Pradesh Association of Mathematics Teachers (APAMT), Hyderabad, India.

Young Physicists Colloquium: Invited Lecture at the Young Physicists Colloquium Kolkata (Calcutta), August 1996, Organized by The Indian Physical Society (IPS).

PROFESSIONAL AFFILIATIONS Optical Society of America

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

INTEGER SEQUENCES **35 Integer Sequences** (in *The On-Line Encyclopedia of Integer Sequences*, http://oeis.org/wiki/User:Sameen_Ahmed_Khan).

PUBLICATIONS: Listing in SCOPUS: <http://www.scopus.com/authid/detail.url?authorId=8452157800>

BOOKS

1. Sameen Ahmed Khan, *International Year of Light and Light-based Technologies*, LAP LAMBERT Academic Publishing, Germany (Thursday the 30 July 2015), 96 pages. <http://www.lap-publishing.com/>, <http://isbn.nu/9783659764820/>. **ISBN-13:** 978-3-659-76482-0, **ISBN-10:** 3659764825 and **EAN:** 9783659764820.
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/>. **ISBN-13:** 978-3-659-77189-7, **ISBN-10:** 3659771899 and **EAN:** 9783659771897
3. Sameen Ahmed Khan, *Objective Questions in Introductory Physics*, LAP LAMBERT Academic Publishing, Germany (Friday the 9 October 2015), 408 pages. <http://www.lap-publishing.com/>, <http://isbn.nu/9783659786198>. **ISBN-13:** 978-3-659-78619-8 and **ISBN-10:** 3659786195 and **EAN:** 9783659786198

BOOK CHAPTERS

1. R. Jagannathan and S. A. Khan, **Wigner functions in charged particle optics**, in: Selected Topics in Mathematical Physics—Professor R. Vasudevan Memorial Volume, *Editors:* R. Sridhar, K. Srinivasa Rao, and V. Lakshminarayanan (Allied Publishers, Delhi, India 1995), pp. 308-321. (ISBN-10: 8170234883 and ISBN-13: 978-8170234883).
2. R. Jagannathan and S. A. Khan, **Quantum theory of the optics of charged particles**, Chapter-4 in *Advances in Imaging and Electron Physics*, *Editors:* P. W. Hawkes, B. Kazan and T. Mulvey, (Academic Press, San Diego) **97**, 257-358 (1996). [http://dx.doi.org/10.1016/S1076-5670\(08\)70096-X](http://dx.doi.org/10.1016/S1076-5670(08)70096-X)
3. Sameen Ahmed Khan, **Wavelength-Dependent Effects in Light Optics**, Chapter-6 in *New Topics in Quantum Physics Research*, *Editors:* Volodymyr Krasnoholovets and Frank Columbus, (Nova Science Publishers, New York, <http://www.novapublishers.com/>) pp. 163-204 (30 December 2006).
4. Sameen Ahmed Khan, **The Foldy-Wouthuysen Transformation Technique in Optics**, Chapter-2 in *Advances in Imaging and Electron Physics*, *Editor:* Peter W. Hawkes, (Elsevier) **152**, 49-78 (August 2008). [http://dx.doi.org/10.1016/S1076-5670\(08\)00602-2](http://dx.doi.org/10.1016/S1076-5670(08)00602-2)
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).
6. Sameen Ahmed Khan, **Coordinate Geometric Generalization of the Spherometer and Cylindrometer**, Chapter-8 in *Advances in Engineering Research*, Volume 10, *Editor:* Victoria M. Petrova, (Nova Science Publishers, New York, 2015, <http://www.novapublishers.com/>), pp. 163-190 (10 July 2015). ISBN-10: 1634827848 and ISBN-13: 978-1-63482-784-3.
7. Sameen Ahmed Khan, **International Year of Light and History of Optics**, Chapter-1 in *Advances in Photonics Engineering, Nanophotonics and Biophotonics*, *Editor:* Tanya Scott, (Nova Science Publishers, New York, 2016), pp. 1-56 (15 March 2016). ISBN-10: 163484498X and ISBN-13: 978-1-63484-498-7).

8. G. B. V. S. Lakshmi, Shumaila, Sameen Ahmed Khan, Azher M. Siddiqui, **Thin Films: Polyaniline and Poly(3-methylthiophene)**, in *Encyclopedia of Plasma Technology* (First Edition), Editor: J. Leon Shohet (Taylor & Francis Encyclopedia Program), pp. 1442-1451, (Monday the 12 December 2016). ISBN-10: 146650059X and ISBN-13: 9781466500594. <http://dx.doi.org/10.1081/E-EPLT-120053953> and <https://www.crcpress.com/Encyclopedia-of-Plasma-Technology/Shohet/9781466500594>.

PEER-REVIEWED JOURNALS

1. S. A. Khan and R. Jagannathan, **Quantum mechanics of charged particle beam transport through magnetic lenses**, *Physical Review E* **51**, 2510-2515 (1995). <http://dx.doi.org/10.1103/PhysRevE.51.2510>
2. M. Conte, R. Jagannathan, S. A. Khan and M. Pusterla, **Beam optics of the Dirac particle with anomalous magnetic moment**, *Particle Accelerators*, **56**, 99-126 (1996).
3. S. A. Khan and M. Pusterla, **Quantum-like approach to the transversal and longitudinal beam dynamics. The halo problem**, *European Physical Journal*, **A7** (4), 583-587 (2000). <http://dx.doi.org/10.1007/s100500050430>
4. Sameen Ahmed Khan and Modesto Pusterla, **Quantum approach to the halo formation in high current beams**, *Nuclear Instruments and Methods in Physics Research (NIMS)*, **A 464**, 461-464 (2001). [http://dx.doi.org/10.1016/S0168-9002\(01\)00108-5](http://dx.doi.org/10.1016/S0168-9002(01)00108-5)
5. Sameen Ahmed Khan and Kurt Bernardo Wolf, **Hamiltonian orbit structure of the set of paraxial optical systems**, *Journal of the Optical Society of America (JOSA)*, **A19** (12), 2436-2444 (December 2002). <http://dx.doi.org/10.1364/JOSAA.19.002436>
6. Sameen Ahmed Khan, **Wavelength-dependent modifications in Helmholtz Optics**, *International Journal of Theoretical Physics*, **44** (1), 95-125 (January 2005). Kluwer Academic Publishers, <http://dx.doi.org/10.1007/s10773-005-1488-0>
7. Sameen Ahmed Khan, **An Exact Matrix Representation of the Maxwell's Equations**, *Physica Scripta*, **71** (5), 440-442 (2005). <http://dx.doi.org/10.1238/Physica.Regular.071a00440>
8. Sameen Ahmed Khan, **The Foldy-Wouthuysen Transformation Technique in Optics**, *Optik - International Journal for Light and Electron Optics*, **117** (10), 481-488 (October 2006). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2005.11.010>
9. Sameen Ahmed Khan, **Maxwell Optics of Quasiparaxial Beams**, *Optik - International Journal for Light and Electron Optics*, **121** (5), 408-416 (March 2010). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2008.07.027>
10. Sameen Ahmed Khan, **Can the Photon Velocity be derived from the Klein-Gordon equation?**, *Optik - International Journal for Light and Electron Optics*, **122** (15), 1324-1325 (August 2011). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2010.08.016>
11. Sameen Ahmed Khan, **Farey Sequences and Resistor Networks**, *Mathematical Sciences - Proceedings of the Indian Academy of Sciences*, **122** (2), 153-162 (May 2012). (Publication of the Indian Academy of Sciences, Copublished with Springer). <http://dx.doi.org/10.1007/s12044-012-0066-7>.
12. Sameen Ahmed Khan, **Aberrations in Maxwell Optics**, *Optik - International Journal for Light and Electron Optics*, **125** (3), 968-978 (February 2014), Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2013.07.097>.
13. Sameen Ahmed Khan and Farooq Ahmed Khan, **Phenomenon of Motion of Salt along the Walls of the Container**, *International Journal of Current Engineering and Technology (IJCET)*, **5** (1), 368-370 (February 2015). <http://dx.doi.org/10.14741/Ijcet/22774106/5.1.2015.66>
14. Sameen Ahmed Khan, **Primes in Geometric-Arithmetic Progression**, *Global Journal of Pure and Applied Mathematics (GJPAM)*, **12** (2), 1161-1180 (March-April 2016). Print ISSN: 0973-1768 and Online ISSN: 0973-9750. <http://www.ripublication.com/gjpam.htm>
15. Sameen Ahmed Khan, **Passage from scalar to vector optics and the Mukunda-Simon-Sudarshan theory for paraxial systems**, *Journal of Modern Optics*, **63** (17), 1652-1660 (September 2016). Taylor & Francis, <http://dx.doi.org/10.1080/09500340.2016.1164257>
16. Sameen Ahmed Khan, **Quantum Methodologies in Helmholtz Optics**, *Optik - International Journal for Light and Electron Optics*, **127** (20), 9798-9809 (October 2016). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2016.07.071>
17. Sameen Ahmed Khan, **Quantum Methods in Light-Beam Optics**, *Optics & Photonics News (OPN)*, **27** (12), 47 (December 2016). (Monthly, Publication of the Optical Society of America).

18. Sameen Ahmed Khan, **Hamilton's Optical-Mechanical Analogy in the Wavelength-dependent Regime**, *Optik - International Journal for Light and Electron Optics*, **130C**, 714-722 (February 2017). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2016.10.112>.
19. Sameen Ahmed Khan, **Linearization of Wave Equations**, *Optik - International Journal for Light and Electron Optics*, **131**, 350-363 (February 2017). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2016.11.073>
20. Sameen Ahmed Khan, **Polarization in Maxwell Optics**, *Optik - International Journal for Light and Electron Optics*, **131**, 733-748 (February 2017). Elsevier, <http://dx.doi.org/10.1016/j.ijleo.2016.11.134>.
21. Sameen Ahmed Khan, **Coordinate Geometric Generalization of the Spherometer**, *Far East Journal of Mathematical Sciences (FJMS)*, **101** (03), 619-642 (February 2017). Print ISSN: 0972-0871 and Online ISSN: 0973-7006. <http://dx.doi.org/10.17654/MS101030619>
22. Sameen Ahmed Khan and Modesto Pusterla, **On the form of Lorentz-Stern-Gerlach force**, (*submitted*).
23. Sameen Ahmed Khan, Ramaswamy Jagannathan and Rajiah Simon, **Foldy-Wouthuysen transformation and a quasiparaxial approximation scheme for the scalar wave theory of light beams**, (*submitted*).

PUBLICATIONS IN CONFERENCE PROCEEDINGS

1. S. A. Khan and R. Jagannathan, **Theory of relativistic electron beam transport based on the Dirac equation**, in: *Proceedings of the 3rd National Seminar on Physics and Technology of Particle Accelerators and their Applications PATPAA-93* (25-27 November 1993, Kolkata (Calcutta)), Editor: S. N. Chintalapudi (IUC-DAEF, Kolkata (Calcutta)), pp. 102–107.
2. R. Jagannathan and S. A. Khan, **Wigner functions in charged particle optics**, in: *Selected Topics in Mathematical Physics—Professor R. Vasudevan Memorial Volume*, Editors: R. Sridhar, K. Srinivasa Rao, and V. Lakshminarayanan (Allied Publishers, Delhi, India 1995), pp. 308-321.
3. R. Jagannathan and S. A. Khan, **Quantum mechanics of accelerator optics**, *ICFA Beam Dynamics Newsletter*, **13**, 21-27 (April 1997). (ICFA: International Committee for Future Accelerators).
4. S. A. Khan, **Quantum theory of magnetic quadrupole lenses for spin- $\frac{1}{2}$ particles**, in: *Proceedings of the 15th Advanced ICFA Beam Dynamics Workshop on Quantum Aspects of Beam Physics*, (4-9 January 1998, Monterey, California USA), Editor: Pisin Chen, (World Scientific, Singapore, 1999), pp. 682-694.
5. Sameen A. Khan, **Quantum aspects of accelerator optics** in: *Proceedings of the 1999 Particle Accelerator Conference PAC99*, (29 March - 02 April 1999, New York City, NY), Editors: A. Luccio and W. MacKay, (IEEE Catalogue Number: 99CH36366) pp. 2817-2819.
6. Sameen A. Khan and Modesto Pusterla, **Quantum mechanical aspects of the halo puzzle**, in: *Proceedings of the 1999 Particle Accelerator Conference PAC99* (29 March - 2 April 1999, New York City, NY), Editors: A. Luccio and W. MacKay, (IEEE Catalogue Number: 99CH36366) pp. 3280-3281.
7. Sameen A. Khan and Modesto Pusterla, **Quantum-like approaches to the beam halo problem**, in: *Proceedings of the 6th International Conference on Squeezed States and Uncertainty Relations ICSSUR'99*, (24-29 May 1999, Napoli, Italy, Editors: D Han, Y S Kim, and S Solimeno, (NASA Conference Publication Series 2000-209899) pp. 438-441 (July 2000).
8. S. A. Khan, **Quantum formalism of beam optics**, in: *Proceedings of the 18th Advanced ICFA Beam Dynamics Workshop on Quantum Aspects of Beam Physics* (15-20 October 2000, Capri, Italy), Editor: Pisin Chen, (World Scientific, Singapore, June 2002). pp. 517-526.
9. Sameen Ahmed Khan, **The World of Synchrotrons**, *Resonance Journal of Science Education*, **6** (11), 77-84 (November 2001), (Publication of the Indian Academy of Sciences, Copublished with Springer).
10. Sameen Ahmed Khan, **Analogies between light optics and charged-particle optics**, *ICFA Beam Dynamics Newsletter*, **27**, 42-48 (June 2002). (ICFA: International Committee for Future Accelerators).
11. Sameen Ahmed Khan, **Quantum Aspects of Charged-Particle Beam Optics**, in: *Proceedings of the Fifth Saudi International Meeting on Frontiers of Physics 2016, SIMFP 2016*, (16-18 February 2016, Department of Physics, Jazan University, Gizan, Saudi Arabia). Editors: Ali Al-Kamli, Nurdogan Can, Galib Omar Souadi, Mohamed Fadhali, Abdelrahman Mahdy and Mahmoud Mahgoub, *AIP Conference Proceedings*, **1742**, 030008-1–030008-4 (10 June 2016). <http://dx.doi.org/10.1063/1.4953129>
12. Riti Sethi, Pravin Kumar, Sameen Ahmed Khan, Anver Aziz and Azher M. Siddiqui, **Effect of Nitrogen Ion Implantation on the Structural and Optical Properties of Indium Oxide Thin Films**, in: *Proceedings of the Fifth Saudi International Meeting on Frontiers of Physics 2016, SIMFP 2016*, (16-18 February 2016, Department of Physics, Jazan University, Gizan, Saudi Arabia). Editors: Ali Al-Kamli, Nurdogan Can, Galib Omar Souadi, Mohamed Fadhali, Abdelrahman Mahdy and Mahmoud Mahgoub,

AIP Conference Proceedings, **1742**, 030016-1–030016-5 (10 June 2016). (American Institute of Physics);
<http://dx.doi.org/10.1063/1.4953137>

SELECTED E-PRINTS (http://arXiv.org/a/khan_s_1)

1. Sameen Ahmed Khan, **Wavelength-Dependent effects in Maxwell Optics**, <http://arxiv.org/abs/physics/0210027/>
2. Sameen Ahmed Khan, **A Statistical Approach to Prime Gaps and Andrica's Conjecture**, 9 pages, *E-Print*:
<https://arxiv.org/abs/1702.08547> (Tuesday the14 February 2017).

EXPOSITORY PUBLICATIONS: 18.

POPULAR WRITINGS: 210+

REFERENCES: Available on request.