Curriculum Vitae

Syed Mohd Amir

D209, Physics Department
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Gender: Male
Date of Birth:
January 06, 1983
Nationality: Indian
Marital Status: Married

Language Skills: English (Fluent), Hindi (Fluent), Urdu (Fluent), German (A2-level), Simplified Chinese (Basics)

Education:

- B. Sc. Physics July 2001 –June 2004
  (Department of Physics, Aligarh Muslim University, Aligarh, India)
  Marks: 73.3%

- M. Sc. Physics July 2004 - June 2007
  (Department of Physics, Aligarh Muslim University, Aligarh, India)
  Marks: 73.13%

- Ph. D. (Physics) February 2009 - June 2013
  (UGC-DAE Consortium for Scientific Research, Indore, India in collaboration with Devi Ahilya Vishwavidyalay, Indore)
  Thesis Title: "Surfactant mediated growth of magnetic multilayers"
  Supervisor: Dr. Mukul Gupta, UGC-DAE Consortium for Scientific Research, Indore

Professional Experience:

- Scientist at QuantLase Lab LLC at Abu Dhabi, UAE January 2023 – August 2024

- Post-Doctoral Fellow in Neutron Division at China Spallation Neutron Source, Dongguan, China November 2019 – December 2022

- Post-Doctoral Fellow/Local Contact MARIA reflectometer at JCNS@MLZ Garching, Munich, Germany July 2013 - October 2018

- Project Fellow at Department of Physics, AMU, Aligarh and Inter University Accelerator Centre (IUAC), New Delhi November 2007 – February 2009

Research Interests and Fields Worked in:

Basic Science: Spintronics, Oxide thin films and heterostructures, Atomic scale diffusion in metallic multilayers, X-ray and Neutron optics, Laser induced nuclear polarization, Static light scattering

Design, Development and instrumentation: UHV thin film growth instruments (e-beam evaporation, ion beam sputtering and molecular beam epitaxy), x-ray and neutron supermirrors, neutron spin flippers, ^{3}He neutron polarizer and analyser, Spin Exchange Optical Pumping of ^{3}He cells and in-situ neutron reflectometry, design of thee scattering instrument (in general).

Chapter Written in Edited Book:

Chapter title: Neutron Diffraction and Reflectometry: A Review on Unique Role in Functional Magnetic Materials by **Syed Mohd Amir** and Pramod Kumar
Book Title: Nanomaterials and Nanostructures, 2024
https://www.intechopen.com/online-first/89292

Publications (International peer reviewed Journals): **22** (List is attached in the end)

Invited Talks in Conferences:

1. Invited talk on "*Quasi in-situ neutron reflectivity on thin films in ultra-high vacuum*" in 6th Conference on Neutron Scattering at BARC Mumbai, India during November 21-23, 2016.

2. Invited talk on "*Polarized neutron reflectivity of thin films in ultra high vacuum using portable transfer chamber*" 17th International Conference in Thin Films (ICTF 2017) at NPL, New Delhi, India during November 13-17, 2017.

Participation in National and International Conference/Symposia/School:

Oral presentation: 12
Poster presentation: 17
School attended: 2

Awards and Recognition:

- Reviewer of the journal Applied Surface Science Advances
- Research Fellowship to visit Paul Scherrer Institut (PSI), Switzerland awarded by Indo-Swiss Joint Research Programme (ISJRP).
- Member of Neutron Scattering Society of India (NSSI) since 2009.
- Senior Research Fellow (SRF) awarded by UGC-DAE CSR, Indore from April 2011 to July 2013.
- Junior Research Fellow (JRF) awarded by UGC-DAE CSR, Indore from September 2009 to March 2011.
- Qualified Joint Entrance Screening Test (JEST): AIR 517

Publications (International peer reviewed Journals): 22

Journals:

1. Ahmed Salman, Jianrong Zhou, Jianqing Yang, Junpei Zhang, Chuyi Huang, Fan Ye, Zecong Qin, Xinfeng Jiang, **Syed Mohd Amir**, Yuchen Dong, Long Tian, Zachary Norris Buck, Wolfgang Kreuzpaintner, Zhijia Sun, Tianhao Wang, and Xin Tong
   Development of Time-of-Flight Polarized Neutron Imaging at the China Spallation Neutron Source
   Chinese Physics Letters 39, 062901 (2022)
   DOI: 10.1088/0256-307X/39/6/062901

2. Junpei Zhang, Chuyi Huang, Zecong Qin, Fan Ye, **Syed Mohd Amir**, Ahmed Salman, Yuchen Dong, Long Tian, Zachary Norris Buck, Wolfgang Kreuzpaintner, Mathew Musgrave, Xin Qi, Tianhao Wang, and Xin Tong
   In-situ optical pumping for polarizing 3He neutron spin filters at the China Spallation Neutron Source
   Science China 65, 241011 (2022)
   doi.org/10.1007/s11433-021-1876-0

3. Chuyi Huang, Junpei Zhang, Fan Ye, Zecong Qin, **Syed Mohd Amir**, Zachary Norris Buck, Ahmed Salman, Wolfgang Kreuzpaintner, Xin Qi, Tianhao Wang, and Xin Tong
   Development of a Spin-Exchange Optical Pumping Based Polarized ^{3}He System at the China Spallation Neutron Source (CSNS).
   Chinese Physics Letters 38, 092801 (2021)
   doi.org/10.1088/0256-307X/38/9/092801

4. Zecong Qin, Chuyi Huang, Zachary Norris Buck, Wolfgang Kreuzpaintner, **Syed Mohd Amir**, Ahmed Salman, Fan Ye, Junpei Zhang, Chenyang Jiang, Tianhao Wang, and Xin Tong
   Development of a 3He Gas Filling Station at the China Spallation Neutron Source
   Chinese Physics Letters 38, 052801 (2021)
   doi.org/10.1088/0256-307X/38/5/052801

5. Seeema, Akhil Tayal, **Syed Mohd Amir**, Sabine Pütter, Stefan Mattauch, and Mukul Gupta
   Structural, electronic, and magnetic properties of Co4N thin films deposited using HiPIMS
   Journal of Alloys and Compounds 863, 158052 (2021)
   https://doi.org/10.1016/j.jallcom.2020.158052

6. Stefan Tober, Marcus Creutzburg, Björn Arndt, Kanstantin Krausert, Stefan MAttauch, Alexandros Koutsioubas, Sabine Pütter, **Syed Mohd Amir**, Lukas Volgger, Herbert Hutter, Heshmat Noei, Vedran Vonk, Dieter Lott, and Andreas Stierle
   Observation of iron diffusion in the near-surface region of magnetite at 470 K
   Phys. Rev. Research 2, 023406 (2020)
   doi.org/10.1103/PhysRevResearch.2.023406

7. Srijani Mallik, **Syed Mohd Amir**, Alexandros Kooutsioubas, Stefan Mattauch, Biswarup Satpati, Thomas Brückel and Subhankar Bedanta
   Tuning spinterface properties in iron/fullerene thin films
   Nanotechnology 30, 435705 (2019)
   doi.org/10.1088/1361-6528/ab3554

8. Nidhi Pandey**,** Sabine Puetter, **Syed Mohd Amir**, V. R. Reddy, D. M. Phase, J. Stahn, and Mukul Gupta
   Effect of Interfacial interdiffusion on magnetism in epitaxial Fe4N films on LaAlO3
   Phys. Rev. Materials 3, 114414 (2019)
   doi.org/10.1103/PhysRevMaterials.3.114414

9. Nidhi Pandey**,** Mukul Gupta, Rajiv Rawat, **Syed Mohd Amir**, Jochen Stahn and Ajay Gupta
   Role of Growth parameters on structural and magnetic properties of Fe_4N thin films grown by reactive magnetron sputtering
   Physica B 572, 36 (2019)
   doi.org/10.1016/j.physb.2019.07.039

10. Mukul Gupta, seema, Nidhi Pandey, **Syed Mohd Amir**, Sabine Puetter and Stefan Mattauch
Synthesis, Structure and Magnetization of Co_4N thin films.
J. Magn. Magn. Mater. 489, 165376 (2019)
doi.org/10.1016/j.jmmm.2019.165376

11. Nidhi Pandey**,** Mukul Gupta, Rachana Gupta, **Syed Mohd Amir**, and Jochen Stahn
Dynamics of reactive affecting phase formation in Co-N thin films.
Applied Physics A 125, 539 (2019)
doi.org/10.1007/s00339-019-2825-0

12. Jingfan Ye, Marco Hauke, Vikram Singh, Rajeev Rawat, Mukul Gupta, Akhil Tayal, **Syed Mohd Amir.**, Jochen Stahn and Amitesh Paul
Magnetic properties of ordered polycrystalline FeRh thin films
RSC Advances 7, 44097 (2017)
DOI: 10.1039/C7RA06738K

13. Enric Menéndez, Hiwa Modarresi, Claire Petermann, Josep Nogués, Neus Domingo, Haoliang Liu, Brian J. Kirby, **Syed Mohd Amir.**, Zahir Salhi, Earl Babcock, Stefan Mattauch, Chris Van Haesendonck, André Vantomme, and Kristiaan Temst
Lateral Lateral Magnetically Modulated Multilayers by Combining Ion Implantation and Lithography
Small 13, 1603465 (2017)
DOI: 10.1002/smll.201603465

14. **Syed Mohd Amir**, Sabine Pütter, Stefan Mattauch, Alexandros Koutsioubas, Harald Schneider, Alexander Weber, and Thomas Brückel
A versatile UHV transport and measurement chamber for neutron reflectometry under UHV conditions
Review of Scientific Instruments 87, 123909 (2016).
DOI: doi.org/10.1063/1.4972993

15. Akhil Tayal**,** Mukul Gupta, D. Kumar, V. R. Reddy, Ajay Gupta, **Syed Mohd Amir**, Panagiotis Korelis, and Jochen Stahn
Correlation between iron self-diffusion and thermal stability in doped iron nitride thin films
Journal of Applied Physics 116, 222206 (2014)
DOI: 10.1063/1.4902962

16. **Syed Mohd Amir**, M. Gupta, S. Potdar, A. Gupta, and J. Stahn
Effect of Ag surfactant in Ni/V superlattices
Journal of Applied Physics 114, 024307 (2013)
DOI: 10.1063/1.4813135

17. **Syed Mohd Amir**, M. Gupta, A. Gupta, Ambika K, and J. Stahn
Silicide Layer Formation in Evaporated and Sputtered Fe/Si multilayers: X-ray and Neutron Reflectivity Study
Applied Surface Science 277, 182 (2013)
DOI: doi.org/10.1016/j.apsusc.2013.04.021

18. **Syed Mohd Amir**, Mukul Gupta, Ajay Gupta and J. Stahn
Surfactant Controlled Interface roughness and Spin-dependent Scattering in Cu/Co Multilayers
Applied Physics A 111, 495 (2013)
DOI: doi.org/10.1007/s00339-012-7527-9

19. R. Gupta, A. Tayal, **Syed Mohd Amir**, M. Gupta, A. Gupta, M. Horisberger and J. Stahn
Formation of Iron Nitride thin films with Al and Ti additives
Journal of Applied Physics 111, 103520 (2012)
DOI: 10.1063/1.4718579

20. **Syed Mohd Amir**, Mukul Gupta and Ajay Gupta
Surfactant Controlled Interfacial Alloying in Thermally Evaporated Cu/Co Multilayers
Journal of Alloys and Compounds 522, 9 (2012)
DOI: doi.org/10.1016/j.jallcom.2011.12.053

21. **Syed Mohd Amir**, Mukul Gupta, Ajay Gupta, J. Stahn and A. Wildes
Surfactant Induced Symmetric and Thermally Stable Interfaces in Cu/Co Multilayers
Journal of Physics: Condensed Matter 23, 485003 (2011)
DOI: doi.org/10.1088/0953-8984/23/48/485003

22. Mukul Gupta, **Syed Mohd Amir**, Ajay Gupta and Jochen Stahn
Surfactant Mediated Growth of Ti/Ni Multilayers
Applied Physics Letters 98, 101912 (2011)
DOI: doi.org/10.1063/1.3565161