

# Curriculum Vitae

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## PRESENT ADDRESS:

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## DR. ASLAM KHAN, Ph.D

### PRESENT POSITION

05/2008 – **Assistant Professor** at [King Abdullah Institute for Nanotechnology](#) (KAIN), King Saud University, Riyadh  
till date  
**In-charge of [Field Emission Scanning Electron Microscopy](#) at KAIN**

### PROFESSIONAL EXPERIENCE

2007-2008 **Postdoctoral Scientist**, [Nanophotonics and Nanomedicine Group](#), Department of Chemistry, **Pohang University of Science and Technology** (POSTECH), South Korea.  
2004-2007 **Scientist**, Centre for Nanotechnology, [Indian Institute of Technology, Guwahati](#), India  
2003-2004 **Postdoctoral Fellow**, Centre for Biomedical Engineering, [Indian Institute of Technology, Delhi](#), India.

### ACADEMIC DEGREES

2003 PhD, Chemistry, [Hamdard University](#), New Delhi, India.  
2000 MSc, Chemistry, [Aligarh Muslim University](#), Aligarh, India  
1998 BSc (Hons.), Chemistry, [Aligarh Muslim University](#), Aligarh, India

### AWARD & FELLOWSHIPS

2015 – Till date Editor: Journal of Bioelectronics and Nanotechnology  
2017 – Till date Editor member: American Journal of Nanosciences

### SCIENTIFIC INTEREST

Nanopolymer, Bioamaterials for Drug Delivery,  
Metal nanoparticles, Quantum dots, Magnetic nanoparticles for biomedical application.

### WORKING EXPERIENCE ON MODERN ANALYTICAL INSTRUMENTS

1. Field Emission Scanning Electron Microscope (FESEM)
2. Transmission Electron microscope (TEM) (operating voltage from 80 kev to 200 kev)
3. Raman spectroscopy
4. Dynamic light scattering (DLS)
5. X-ray diffraction (SAXS /WAXS)

6. FTIR, ATR-FTIR, UV-vis (NIR)
7. Gel Permeation Chromatography (GPC) for polymer characterization.
8. NMR Spectroscopy for Polymers.

## LABORATORY SETUP

Actively participate in purchasing and setup of various analytical instruments since last ten years to modernize the laboratory.

- I was actively involved in setting up electron microscopy facilities (Transmission Electron Microscopy) at IIT Guwahati during my tenure (2004-07) and its operation.
- Electron Microscopy Facilities at King Saud University: As soon as I joined KSU, I was involved in setting up various analytical laboratories related to nanotechnology research. Under my supervision Electron microscope facilities was set up at KAIN and installed TEM and FE-SEM in 2008-09. Since then I am the in-charge of FE-SEM and TEM. I am well verse (hand on operation) with these sophisticated instruments.

## TEACHING EXPERIENCE

2002 –2003 Teaching Assistant (M.Sc previous), Department of Chemistry, Hamdard University, New Delhi.

## RESEARCH PROJECTS:

1. Deanship of Scientific Research, King Saud University, RG-1438-094  
Role: **Principal Investigator**, Starting Year: 2017, Status: *Ongoing*
2. Deanship of Scientific Research, King Saud University, RG-1435-002  
Role: **CO-PI**, PI: Dr. Ahmed El-Toni, Starting Year: 2014, Status: *Ongoing*
3. "Development of stimuli sensitive nanogels for controlled release systems."  
Funded by: Department of Science and Technology, New Delhi, India  
Role: **Principal Investigator**  
Year: 2004 – 2007; Status: Completed
4. Synthesis of core-shell mesoporous architectures based on anionic surfactants for drug delivery"  
Funded by: National Plan for Science & Technology thru' King Abdul Aziz City of Science and Technology (KACST), Saudi Arabia  
Role: **Co-Principal Investigator**  
Year: 2010-2013; Status: Completed
5. "Development of temperature sensitive polymer-gold nanoparticles hybrid materials for biomedical application"  
Funded by: National Plan for Science & Technology thru' King Abdul Aziz City of Science and Technology (KACST), Saudi Arabia  
Role: **Principal Investigator**  
Year: 2010-2013; Status: Completed
6. "Silicon nanoparticles in sol gel based active media for optoelectronic applications"  
Funded by: National Plan for Science & Technology thru' King Abdul Aziz City of Science and Technology (KACST), Saudi Arabia

Role: **Co-Principal Investigator**, Year: 2010-2013; Status: Completed

## **PUBLICATIONS; Peer review articles: 21/10/2024**

[https://scholar.google.com/citations?hl=en&user=HvP4ceEAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=HvP4ceEAAAJ&view_op=list_works&sortby=pubdate)

1. Microwave-assisted sol-gel synthesis of mesoporous NiO-decorated silica nanostructures utilizing biogenic silica source for supercapacitor applications, SR Priyan, GS Kumar, K Lalithambigai, M Shkir, **A Khan**, R Rajendran, ..., *Journal of Alloys and Compounds*, 976, 173206, **2024** <https://doi.org/10.1016/j.jallcom.2023.173206>
2. Utility of silver nanoparticles embedded on covalent organic framework as a highly active catalyst for carboxylative cyclization with CO<sub>2</sub>: a sustainable route for production of ...DK Nandi, N Haque, S Biswas, NA Siddiqui, **A Khan**, SM Islam, *New Journal of Chemistry*, 48, 11982-11992, **2024** <https://doi.org/10.1039/D4NJ00400K>
3. Electronic Structure Modulating of W 18 O 49 Nanospheres by Niobium Doping for Efficient Hydrogen Evolution Reaction, H Guo, L Pan, M Gao, L Kong, J Zhang, **A Khan**, NA Siddiqui, J Lin, *Chemistry–A European Journal*, e202403043, **2024** <https://doi.org/10.1002/chem.202403043>
4. Pyrene-Based 2D Covalent Organic Framework Engineered with 3D-MoS<sub>2</sub>-Nanoflowers Tuned with High Surface Area Assisted in Visible-Light-Driven Photocatalytic H<sub>2</sub> Evolution and CO<sub>2</sub> ...S Kumar, P Chakraborty, RV Singh, MR Pai, **A Khan**, NA Siddiqui, ..., *ACS Appl. Energy Mater.* 7, 10, 4429–4444, **2024** <https://doi.org/10.1021/acsaem.4c00360>
5. Anionic Effect on Electrical Transport Properties of Solid Co<sup>2+/3+</sup> Redox Mediators, RK Gupta, A Imran, **A Khan**, *Polymers* 16 (10), 1436, **2024** <https://doi.org/10.3390/polym16101436>
6. Noticeable influence of V-dopant on optoelectronic properties of ZnO films prepared by SILAR technique, M Shkir, MT Khan, **A Khan**, FH Alkallas, ABG Trabelsi, FS Khan, S AlFaify, *Results in Physics* 60, 107680, **2024** <https://doi.org/10.1016/j.rinp.2024.107680>
7. Remarkable improvement in photocatalytic activity of NiO nanoparticles through Ag doping: A kinetics-mechanism & recyclability, M Shkir, P Baskaran, **A Khan**, MT Khan, *International Journal of Hydrogen Energy* 73, 54-62, **2024** <https://doi.org/10.1016/j.ijhydene.2024.05.466>
8. Impact of Mo doping on photo-sensing properties of ZnO thin films for advanced photodetection applications, M Shkir, MT Khan, **A Khan**, *Journal of Alloys and Compounds* 985, 174009, **2024** <https://doi.org/10.1016/j.jallcom.2024.174009>
9. Electrical transport properties of [(1- x) succinonitrile: x poly (ethylene oxide)]–LiCF<sub>3</sub> SO<sub>3</sub>–Co [tris-(2, 2'-bipyridine)]<sub>3</sub> (TFSI)<sub>2</sub>–Co [tris-(2, 2'-bipyridine)]<sub>3</sub> (TFSI) ..., RK Gupta, H Shaikh, A Imran, I Bedja, AF Ajaj, AS Aldwayyan, **A Khan**, ..., *RSC advances* 14 (1), 539-547, **2024** <https://doi.org/10.1039/D3RA07314A>
10. Synthesis, structural mechanisms, RDG, biological and pharmaceutical significance of anticancer agent 9H-carbazole attached 4-chlorobenzaldehyde using DFT reckonings, S Anithamani, MK Subramanian, I Ragavan, PM Anbarasan, NA Siddiqui, **A Khan**, *Journal of the Indian Chemical Society* 101 (11), 101343, **2024** <https://doi.org/10.1016/j.jics.2024.101343>
11. Enhancement of photodetector performance of aluminum-doped zinc oxide thin films fabricated via SILAR method: Structural, optical, and electrical analysis, MT Khan, KH Prasad, **A Khan**, M Shkir, *Inorganic Chemistry Communications* 169, 112973, **2024** <https://doi.org/10.1016/j.inoche.2024.112973>
12. Thermally induced Modulation of optoelectronic characteristics In (ZrO<sub>2</sub>) 0.8 doped (CuO) 0.2 screen printed thick films: An Innovative approach to enhanced materials, S Chackrabarti, T Mearaj, A Siddiqui, RA Zargar, AA Bhat, NA Siddiqui, , **A Khan**, *Optical Materials* 156, 115934, **2024** <https://doi.org/10.1016/j.optmat.2024.115934>
13. High-performance battery type bismuth vanadate electrodes for supercapacitors, J Shoba, S Maruthamuthu, K Sakthivel, **A Khan**, *Ionics* 30 (9), 5713-5722, **2024** <https://doi.org/10.1007/s11581-024-05679-y>
14. A pn heterojunction PdO/CeO<sub>2</sub> photocatalysts with enhanced photocatalytic ability for reduction of Hg (II) ions from aqueous solution, LA Al-Hajji, A Al-Anazi, AA Ismail, AM El-Toni, **A Khan**, M Shkir, *Ceramics International*, 50, 22, 45650-45657, **2024** <https://doi.org/10.1016/j.ceramint.2024.08.404>
15. A Reversible NIR-II Ratiometric Fluorescent Probe for Real-Time In Vivo ATP Detection Yunyi Liu, Lu Zhang, Ying Chen, Haitao Sun, Jiajian Chen, Ahmed Mohamed El-Toni, **Aslam Khan**, Zuhai Lei, Fan Zhang, *Advanced Optical Materials*, 11 (17), 2301144, **2023** <https://doi.org/10.1002/adom.202301144>
16. **Covalent** immobilization of quaternary ammonium salts on covalent organic framework: Sustainable intensification strategy for the synthesis of cyclic carbonates from CO<sub>2</sub>, S Sarkar, S Ghosh, R Sani, J Seth, **A Khan**, **A Khan**, SM Islam, *ACS Sustainable Chemistry & Engineering* 11 (39), 14422-14434, **2023** <https://doi.org/10.1021/acssuschemeng.3c03041>
17. Facile synthesis of Pd nanoparticles dispersed polypyrrole-carbon black/NiO nanocomposite with enhanced photocatalytic degradation of colored and colorless organic pollutants, M Faisal, J Ahmed, M Jalalah, AM El-Toni, JP Labis, **A Khan**, FA Harraz, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 677, 132416, **2023** <https://doi.org/10.1016/j.colsurfa.2023.132416>
18. Tuning the optical, vibrational, and nonlinear optical properties of Pr: Co<sub>3</sub>O<sub>4</sub> thin films for improved opto-nonlinear device performances, SM Mariappan, **A Khan**, M Shkir, *Ceramics International* 49 (23), 39657-39663, **2023** <https://doi.org/10.1016/j.ceramint.2023.09.320>

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<https://doi.org/10.1016/j.mssp.2023.107798>
20. Tailoring the electronic structure of Ni5P4/Ni2P catalyst by Co2P for efficient overall water electrolysis, H Liu, Y Zhang, R Ge, JM Cairney, R Zheng, **A Khan**, S Li, B Liu, L Dai, ... Applied Energy 349, 121582, **2023**
21. Influence of Sn4+ substitution on the ZnO crystal structure and their enhanced fibre optic gas sensing and photocatalytic degradation performance C Rajkumar, KS Balamurugan, CK Pradhan, A Arulraj, M Kalaiselvan, **A Khan**, Physica B: Condensed Matter 667, 415139, **2023**
22. Development of C3N4 embedded Bi2WO6 heterostructure for the improved toxic Cr (VI) reduction performance, S Sampath, V Rohini, S Muralidharan, D Nagarajan, KS Balamurugan, , **A Khan**, Chemical Physics Letters, 140804, **2023**
23. Photocatalytic activities of Mg doped NiO NPs for degradation of Methylene blue dye for harmful contaminants: A kinetics, mechanism and recyclability, KV Chandekar, B Palanivel, FH Alkallas, ABG Trabelsi, **A Khan**, IM Ashraf, ...Journal of Physics and Chemistry of Solids 178, 111345, **2023** <https://doi.org/10.1016/j.jpcs.2023.111345>
24. Facile auto-flash-combustion synthesis and characterization of visible-light-driven photocatalytic active Mn (II, III) loaded NiO nanoparticles, M Shkir, KV Chandekar, B Palanivel, FH Alkallas, ABG Trabelsi, **A Khan**, ...Journal of Science: Advanced Materials and Devices, 100588, **2023**
25. Nano Nickel-Zirconia: An Effective Catalyst for the Production of Biodiesel from Waste Cooking Oil, MR Shaik, M Khan, JVS Kumar, M Ashraf, M Khan, M Kuniyil, ME Assal, **A Khan**, Crystals 13 (4), 592, **2023** <https://doi.org/10.3390/cryst13040592>
26. Facile low temperature development of Ag-doped PbS nanoparticles for optoelectronic applications, ABG Trabelsi, FH Alkallas, KV Chandekar, A Kumar, M Ubaidullah, A Khan, Materials Chemistry and Physics 297, 127299, **2023**  
<https://doi.org/10.1016/j.matchemphys.2023.127299>
27. Improved linear and nonlinear optical properties of PbS thin films synthesized by spray pyrolysis technique for optoelectronics: An effect of Gd3+ doping concentrations, KV Chandekar, FH Alkallas, ABG Trabelsi, M Shkir, J Hakami, **A Khan**, Physica B: Condensed Matter 641, 414099, 2022 <https://doi.org/10.1016/j.physb.2022.414099>
28. Tuning the Frölich interactions in bismuth modified lead sulphide quantum dots to minimize the excitonic carrier energy dissipation, M Shkir, S Muthu Mariappan, **A Khan**, E Vinoth, H Algarni, AM El-Toni, International Journal of Energy Research 46 (9), 11914-11924, 2022 <https://doi.org/10.1002/er.7961>
29. Facile synthesized NaGdF4:Yb,Er peanut-shaped, highly biocompatible, colloidal upconversion nanospheres, AA Ansari, JP Labis, **A Khan**, Luminescence 37 (7), 1048-1056, 2022 <https://doi.org/10.1002/bio.4249>
30. Excellent photo-detection properties of cerium doped ZnO device fabricated by spray pyrolysis technique, M Shkir, J Hakami, MM Hossain, NS Awwad, **A Khan**, Inorganic Chemistry Communications 140, 109439, 2022  
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31. Spray pyrolysis developed Nd doped Co3O4 nanostructured thin films and their structural, and opto-nonlinear properties for optoelectronics applications, M Shkir, **A Khan**, M Imran, MA Khan, RA Zargar, T Alshahrani, KDA Kumar, ...Optics & Laser Technology 150, 107959, 2022 <https://doi.org/10.1016/j.optlastec.2022.107959>
32. A comprehensive study on structure, opto-nonlinear and photoluminescence properties of Co3O4 nanostructured thin films: An effect of Gd doping concentrations, M Shkir, ZR Khan, **A Khan**, KV Chandekar, MA Sayed, S AlFaify, Ceramics International 48 (10), 14550-14559, 2022 <https://doi.org/10.1016/j.ceramint.2022.01.348>
33. Surface-enhanced Raman scattering (SERS) active substrate from gold nanoparticle-coated porous silicon for sensitive detection of horseradish peroxidase enzyme, AM Al-Syadi, M Faisal, AM El-Toni, **A Khan**, M Jalalah, SA Alsareii, ...Materials Chemistry and Physics 281, 125931, 2022 <https://doi.org/10.1016/j.matchemphys.2022.125931>
34. An in silico approach to identify potential medicinal plants for treating Alzheimer disease: a case study with acetylcholinesterase, AM Potshangbam, A Nandeibam, T Amom, N Potshangbam, H Rahaman, , **A Khan**, Journal of Biomolecular Structure and Dynamics 40 (4), 1521-1533, 2022 <https://doi.org/10.1080/07391102.2020.1828170>
35. Enhanced photocatalytic activities of facile auto-combustion synthesized ZnO nanoparticles for wastewater treatment: An impact of Ni doping, M Shkir, B Palanivel, **A Khan**, M Kumar, JH Chang, A Mani, S AlFaify Chemosphere 291, 132687, 2022  
<https://doi.org/10.1016/j.chemosphere.2021.132687>
36. Insight into Al doping effect on photodetector performance of CdS and CdS: Mg films prepared by self-controlled nebulizer spray technique, KDA Kumar, P Mele, S Golovynskyi, **A Khan**, AM El-Toni, AA Ansari, ...Journal of Alloys and Compounds 892, 160801, 2022 <https://doi.org/10.1016/j.jallcom.2021.160801>
37. Noticeably enhanced opto-electrical and photodetection performance of spray pyrolysis grown Mn: CdS nanostructured thin films for visible-light sensor applications, ZR Khan, MS Revathy, M Shkir, **A Khan**, MA Sayed, A Umar, ...Surfaces and Interfaces 28, 101586, 2022 <https://doi.org/10.1016/j.surfin.2021.101586>
38. An impact of novel Terbium (Tb) doping on key opto-nonlinear optical characteristics of spray pyrolyzed NiO nanostructured films for opto-nonlinear applications, ZR Khan, KV Chandekar, **A Khan**, N Akhter, MA Sayed, M Shkir, H Algarni, ...Materials Science in Semiconductor Processing 138, 106260, 2022 <https://doi.org/10.1016/j.mssp.2021.106260>
39. Novel magnetic materials preparation, characterizations and their applications, KV Chandekar, M Shkir, **A Khan**, S AlFaify, Fundamentals and Industrial Applications of Magnetic Nanoparticles, 67-116, 2022 <https://doi.org/10.1016/B978-0-12-822819-7.00015-6>

40. Visible-light-driven sustainable conversion of carbon dioxide to methanol using a metal-free covalent organic framework as a recyclable photocatalyst, P Chakraborty, S Ghosh, A Das, **A Khan**, SM Islam, *Catalysis Science & Technology* 12 (11), 3484-3497, 2022 <https://doi.org/10.1039/D2CY00088A>
41. Sapindus mukorossi seed shell extract mediated green synthesis of CuO nanostructures: an efficient catalyst for C–N bond-forming reactions, TC Saikia, S Iraqui, **A Khan**, MH Rashid, *Materials Advances* 3 (2), 1115-1124, 2022 <https://doi.org/10.1039/D1MA00927C>
42. **A remarkable effect of substrate temperature on novel Al/Y2O3/n-Si heterojunction diodes performance fabricated by facile jet nebulizer spray pyrolysis for optoelectronic**, T Alshahrani, M Shkir, **A Khan**, AM El-Toni, AA Ansari, MA Shar, ...*Chinese Journal of Physics* 75, 14-27, 2022 <https://doi.org/10.1016/j.cjph.2021.06.031>
43. Biocompatible NaYF4: Yb, Er upconversion nanoparticles: Colloidal stability and optical properties AA Ansari, JP Labis, **A Khan**, *Journal of Saudi Chemical Society* 25 (12), 101390, 2021 <https://doi.org/10.1016/j.jscs.2021.101390>
44. High sensitive samarium-doped ZnS thin films for photo-detector applications, AJ Jebathew, M Karunakaran, M Shkir, H Algarni, S AlFaify, **A Khan**, ...*Optical Materials* 122, 111649, 2021 <https://doi.org/10.1016/j.optmat.2021.111649>
45. Tailoring the structural, optical and remarkably enhanced photocatalytic activities of nickel oxide nanostructures through cobalt doping, M Shkir, B Palanivel, **A Khan**, N Ahmad, A Mani, *Surfaces and Interfaces* 27, 101515, 2021 <https://doi.org/10.1016/j.surfin.2021.101515>
46. Significant and systematic impact of yttrium doping on physical properties of nickel oxide nanoparticles for optoelectronics applications, KV Chandekar, M Shkir, **A Khan**, MA Sayed, N Alotaibi, T Alshahrani, ...*Journal of Materials Research and Technology* 15, 2584-2600, 2021 <https://doi.org/10.1016/j.jmrt.2021.09.072>
47. Facile fabrication of Ag/Y: CdS/Ag thin films-based photodetectors with enhanced photodetection performance, M Shkir, ZR Khan, KV Chandekar, T Alshahrani, IM Ashraf, **A Khan**, ...*Sensors and Actuators A: Physical* 331, 9, 112890 2021 <https://doi.org/10.1016/j.sna.2021.112890>
48. High-fidelity NIR-II multiplexed lifetime bioimaging with bright double interfaced lanthanide nanoparticles, X Zhu, X Liu, H Zhang, M Zhao, P Pei, Y Chen, Y Yang, L Lu, P Yu, C Sun, , **A Khan**, *Angewandte Chemie* 133 (44), 23737-23743, 2021 <https://doi.org/10.1002/ange.202108124>
49. Optimization of the optoelectronic properties of copper zinc tin sulfide thin films for solar photovoltaic applications, KV Gunavathy, AMS Arulanantham, , **A Khan**, CSA Raj, AM El-Toni, ...*Physica Scripta* 96 (12), 125834, 2021 **DOI** 10.1088/1402-4896/ac169b
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51. Microwave-assisted synthesis of Cu doped PbS nanostructures with enhanced dielectric and electrical properties for optoelectronic applications, M Shkir, B Palanivel, KV Chandekar, **A Khan**, AM El-Toni, AA Ansari, ...*Materials Science and Engineering: B* 271, 115268, 2021 <https://doi.org/10.1016/j.mseb.2021.115268>
52. 2D covalent organic framework: a photoactive heterogeneous catalyst for chemical fixation of CO<sub>2</sub> over propargyl amines in water under sunlight, P Sarkar, AH Chowdhury, S Biswas, **A Khan**, SM Islam, *Materials Today Chemistry* 21, 100509, 2021 <https://doi.org/10.1016/j.mtchem.2021.100509>
53. Effect of Er doping on linear and nonlinear optical properties of NiO films, M Shkir, ZR Khan, MA Sayed, KV Chandekar, **A Khan**, A Kumar, ...*Chinese Journal of Physics* 72, 547-557, 2021 <https://doi.org/10.1016/j.cjph.2021.05.020>
54. Zinc influence on nanostructured tin oxide (SnO<sub>2</sub>) films as ammonia sensor at room temperature, M Boomashri, P Perumal, **A Khan**, AM El-Toni, AA Ansari, RK Gupta, ...*Surfaces and Interfaces* 25, 101195, 2021 <https://doi.org/10.1016/j.surfin.2021.101195>
55. Zn(II)-Embedded Nanoporous Covalent Organic Frameworks for Catalytic Conversion of CO<sub>2</sub> under Solvent-Free Conditions, N Haque, S Biswas, S Ghosh, AH Chowdhury, **A Khan**, SM Islam, *ACS Applied Nano Materials* 4 (8), 7663-7674, 2021 <https://doi.org/10.1021/acsanm.1c00785>
56. Highly hydrophilic CaF<sub>2</sub>: Yb/Er upconversion nanoparticles: Structural, morphological, and optical properties, AA Ansari, AK Parchur, JP Labis, MA Shar, **A Khan**, *Journal of Fluorine Chemistry* 247, 109820, 2021 <https://doi.org/10.1016/j.jfluchem.2021.109820>
57. Solventless Mechanochemical Fabrication of ZnO–MnCO<sub>3</sub>/N-Doped Graphene Nanocomposite: Efficacious and Recoverable Catalyst for Selective Aerobic ...M Khan, SF Adil, ME Assal, Al Alharthi, MR Shaik, M Kuniyil, A Al-Warthan, , **A Khan**, *Catalysts* 11 (7), 760, 2021 <https://doi.org/10.3390/catal11070760>
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