Department of Nanotechnology

Dr. Akshay Kumar

Research Publications
Research Papers Published in National/ International Journals:

S. No.	Author (s)	Year	Title	Complete Reference of Journal	Impact Factor of Journal	ISSN No.
1.	Bikramjeet Singh, Kulwinder Singh, Manjeet Kumar, Shagun Thakur, **Akshay Kumar**	**2019**	Insights of preferred growth, elemental and morphological properties of BN/ SnO_2 composite for photocatalytic applications towards organic pollutants	Chemical Physics, 531 (2020) 110659	1.822	0301-0104
2.	Gurpreet Kaur, Manjot Kaur, Anup Thakur, **Akshay Kumar**	**2019**	Recent Progress on Pyrite FeS_2 Nanomaterials for Energy and Environment Applications: Synthesis, Properties and Future Prospects	Journal of Cluster Science, https://doi.org/10.1007/ s10876-019-01708-3	2.125	1572-8862
3.	Harpreet Singh, Palwinder Singh, Randhir Singh, Jeewan Sharma, A.P. Singh, **Akshay Kumar**, Anup Thakur	**2019**	Composition dependent structural phase transition and optical Band gap tuning in InSe thin films	Heliyon, 5 (2019) e02933	0	2405-8440
4.	Manjot Kaur, Paviter Singh, Kulwinder Singh, Usha Singh Garhwar, Ramovatar Meena, Manjeet Kumar, Fumiko Nakagawa, Shangze Wu, Minoru Suzukie, Hiroyuki Nakamura, **Akshay Kumar**	**2019**	Boron Nitride (^{10}BN) a prospective material for treatment of cancer by Boron Neutron Capture Therapy (BNCT)	Materials Letters, 259 (2020) 126832	3.019	0167-577X
5.	Unni Krishnan, Manjot Kaur, Manjeet Kumar, **Akshay Kumar**	**2019**	Factors affecting the stability of perovskite solar cells: a comprehensive review	Journal of Photonics for Energy, 9(2), 021001	2.277	1947-7988
6.	Karanveer Singh, Deepak Kukkar, Ravinder Singh, PreetiKukkar, Nardev Bajaj, Jagpreet Singh, Mohit Rawat, **Akshay Kumar**, Ki-Hyun Kim	**2019**	In situ green synthesis of Au/Ag nanostructures on a metal-organic framework surface for photocatalytic reduction of p-nitrophenol	Journal of Industrial and Engineering Chemistry, 81 (2020) 196-205	4.978	1226-086X

7.	Megha Jain, Manju, AbhiramGundimeda, **Akshay Kumar**, Sanjay Kumar, Govind Gupta, Sung Von, KeunChae, Ankush Vij, Anup Thakur	**2019**	Enhanced near-infrared luminescence in zinc aluminate bestowed by fuel-blended combustion approach	Journal of Alloys and Compounds, 797, 148-158	4.175	1873466 9
8.	Manish Kumar, Pooja Devi, V.D. Shivling, Baban Kumar, **Akshay Kumar**	**2019**	Impact on optical, electrical and antibacterial response of microwave irradiated silver nanoparticles	J Mater Sci: Mater Electron (2019) 30:6370-6377	2.195	1573-482 X
9.	Unni Krishnan, Manjot Kaur, Kulwinder Singh, Manjeet Kumar, **Akshay Kumar**	**2019**	A synoptic review of MoS_2: Synthesis to applications	Superlattices and Microstructures 128 (2019) 274-297	2.385	0749-603 6
10.	Unni Krishnan, Manjot Kaur, Kulwinder Singh, Gurpreet Kaur, Paviter Singh, Manish Kumar, **Akshay Kumar**	**2019**	MoS_2/Ag nanocomposites for electrochemical sensing and photocatalytic degradation of textile pollutant	Journal of materials science: materials in electronics 30 (2019) 3711–3721	2.195	1573-482 X
11.	Manpreet Kaur, Paviter Singh, Gurpreet Kaur, Manjot Kaur, Jeewan Sharma, Manjeet Kumar, Manoj Sharma and **Akshay Kumar**	2019	Development of Colloidal Semiconductor Nanocrystals: Synthesis, Properties and their Outlook for Light Emitting Diodes (LEDs)	International Journal on Emerging Technologies 10(1): 16-34		2249-3255
12.	Manjeet Kumar, Vishwa Bhatt, **Akshay Kumar**, Ju-Hyung Yun	**2019**	Nano lily-buds garden like ZnOnanostructures based gas sensor for H_2 detection	Materials Letters 240 (2019) 13–16	3.019	0167-577X
13.	Kulwinder Singh, Manjeet Kumar, Paviter Singh, Gurpreet Kaur, Bikramjeet Singh, Anup Thakur, Ju-Hyung Yun, **Akshay Kumar**	**2019**	NiO nanostructures: Effect of iron doping on structural, defect chemistry and spectroscopic properties	AIP Conference Proceedings, 2115 (2019) 030121		1551-7616
14.	Unni Krishnan, Manjot Kaur, Gurpreet Kaur, Kulwinder Singh, Ankit Rai Dogra, Manjeet Kumar, **Akshay Kumar**	**2018**	MoS_2/ZnO nanocomposites for efficient photocatalytic degradation of industrial pollutants	Materials Research Bulletin 111 (2019) 212–221	3.355	1873-4227
15.	Palwinder Singh, A.P. Singh, Jeewan Sharma, **Akshay Kumar**, Monu	**2018**	Reduction of Rocksalt Phase in Ag-Doped $Ge_2Sb_2Te_5$: A	Physical Review Applied 10, 054070 (2018)	4.532	2331-7019

	Mishra, Govind Gupta, and Anup Thakur		Potential Material for Reversible Near-Infrared Window			
16.	Paviter Singh, Gurpreet Kaur, Kulwinder Singh, Manjot Kaur, Manjeet Kumar, Ramovatar Meena, Rajni Bala, **AkshayKumar**	2018	Nanostructured boron carbide (B_4C): A bio-compatible and recyclable photo-catalyst for efficient wastewater treatment	Materialia 1 (2018) 258–264		2589-1529
17.	Manjeet Kumar, Vishwa Bhatt, A. C. Abhyankar, Joondong Kim, **Akshay Kumar**, Sagar H. Patil & Ju-Hyung Yun	2018	New insights towards strikingly improved room temperature ethanol sensing properties of p-type Ce-doped SnO_2 sensors	Scientific Reports, 8 (2018) 8079	4.011	2045-2322
18.	Manpreet Kaur, Ashma Sharma, Murat Olutas, OnurErdem, **Akshay Kumar,**Manoj Sharma, Hilmi Volkan Demir	2018	Cd-free Cu-doped ZnInS/ZnS Core/Shell Nanocrystals: Controlled Synthesis And Photophysical Properties,	Nanoscale Research Letters (2018) 13:182	3.159	1556276X
19.	Paviter Singh, Gurpreet Kaur, Kulwinder Singh, Bikramjeet Singh, Manpreet Kaur, Manjot Kaur, Unni Krishnan, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2018	Specially designed B4C/SnO2 nanocomposite for photocatalysis: traditional ceramic with unique properties,	Applied Nanoscience, 8 (2018) 1-9	3.198	21905509
20.	Jeewan Sharma, Randhir Singh, **Akshay Kumar**, Tejbir Singh, Paras Agrawal, Anup Thakur	2018	Size- controlled synthesis of nanocrystalline CdSe thin films by inert gas condensation,	Applied Nanoscience, 8 (2018) 359-367	3.198	21905509
21.	Virender Kumar, Kulwinder Singh, Megha Jain, Manju, **Akshay Kumar,**Jeewan Sharma, Ankush Vij, Anup Thakur	2018	Role of Cu in engineering the optical properties of SnO2 nanostructures: Structural, morphological and spectroscopic studies,	Applied Surface Science, 444 (2018) 552-558	5.155	18735584
22.	Harinder Singh, **Akshay Kumar**, Baban Kumar Bansod, Tejbir Singh, Anup Thakur, Tarandip Singh, Jeewan Sharma	2018	Enhanced Moisture Sensing Properties of Nanostructured ZnO Coated Capacitive Sensor,	RSC Advances, 8 (2018) 3839-3845	3.049	2046-2069
23.	Manjeet Kumar, Vishwa Bhatt, A.C. Abhyankar, Joondong Kim, **Akshay**	2018	Modulation of Structural Properties of Sn doped ZnO for UV	Sensors and Actuators A: Physical, 270 (2018) 118-126	2.739	09244247

	Kumar, Ju-Hyung Yun		Photoconductors,			
24.	Manish Kumar, Unni Krishnan, Pooja Devi, **Akshay Kumar**	2018	Structural analysis of graphene oxide/silver nanocomposites: optical properties, electrochemical sensing and photocatalytic activity	J Mater Sci: Mater Electron, 29 (2018) 10-19	2.195	1573-482 X
25.	Gurpreet Kaur, Pooja D. Sharma, Anup Thakur, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2018	Synthesis of nanostructured Marcasite (FeS_2) for energy storage applications,	AIP Conference Proceedings, 1953 (2018) 030086.		1551-7616
26.	Paviter Singh, Gurpreet Kaur, Kulwinder Singh, Bikramjeet Singh, Manjot Kaur, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2018	Comparative studies of electrochemical properties of Carbon Nanotubes and Nanostructured Boron Carbide	AIP Conference Proceedings, 1953 (2018) 030077		1551-7616
27.	Kulwinder Singh, Manjeet Kumar, Dilpreet Singh, Manjinder Singh, Paviter Singh, BikramjeetSingh, Gurpreet Kaur, Rajni Bala, Anup Thakur, **Akshay Kumar**	2018	Fluorine doped NiO nanostructures: structural, morphological and spectroscopic studies	AIP Conference Proceedings, 1953 (2018) 030219		1551-7616
28.	Paviter Singh, Gurpreet Kaur, Rohit Kumar, Umesh Kumar, Kulwinder Singh, Manjeet Kumar, Rajni Bala, Ramovtar Meena, **Akshay Kumar**	2018	Boron carbide nanostructures: a prospective material as an additive in concrete,	AIP Conference Proceedings, 1953 (2018) 030264		1551-7616
29.	Megha Jain, Manju, Kulwinder Singh, **Akshay Kumar**, Jeewan Sharma, K. H. Chae, Ankush Vij, Anup Thakur	2018	Single step synthesis and characterization of $ZnAl_2O_4$ nanoparticles	AIP Conference Proceedings 1953, 030068 (2018)		1551-7616
30.	Gurpreet Kaur, Pooja D., Manjeet Kumar, Anup Thakur, Rajni Bala, **Akshay Kumar**	2017	Electrochemical aspects of photocatalysis: Au@FeS_2 nanocomposite for removal of industrial pollutant	Physical Chemistry Chemical Physics, 19 (2017) 32412	3.567	1463908 4
31.	Bikramjeet Singh, Gurpreet Kaur, Paviter Singh, Kulwinder Singh, Jeewan Sharma, Manjeet Kumar,	2017	Nanostructured BN-TiO_2 composite with ultra-high photocatalytic activity	New Journal of Chemsitry, 41 (20, 2017), 11640-11646	3.069	1369926 1

	Rajni Bala, Ramovtar Meena, Saurabh k sharma, **Akshay Kumar**					
32.	Virender Kumar, Kulwinder Singh, Jeewan Sharma, **Akshay Kumar**, Ankush Vij, Anup Thakur	2017	Zn-doped SnO_2 nanostructures: structural, morphological and spectroscopic properties	J Mater Sci: Mater Electron, 28 (2017) 18849-18856	2.195	1573-482 X
33.	Palwinder Singh, Ramandeep Kaur, **AkshayKumar**, Anup Thakur	2017	Structural and Optical Properties of Sb_xSe_{100-x} (x = 0, 5) Thin Films	Optical and Quantum Electronics, 2017, 49:288	1.547	1572-817X
34.	Manjeet Kumar, Bikramjeet Singh, Pankaj Yadav, manoj Kumar, Kulwinder Singh, A.C. Abhyankar, Ju-HyungYun, **Akshay Kumar**	2017	Effect of structural defects, surface roughness on sensing properties of Al doped ZnO thin films deposited by chemical pray pyrolysis technique	Ceramics International, 43 (2017) 3562-3568	3.450	1873395 6
35.	Gurpreet Kaur,Bikramjeet Singh, Paviter Singh, Kulwinder Singh, Anup Thakur, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2017	Iron disulfide (FeS_2) : A promising material for removal of industrial pollutants	Chemistry Select, 2 (2017) 2166-2173	1.716	2365-6549
36.	Paviter Singh, Kulwinder Singh, Manpreet Kaur, Harpreet Kaur, Bikramjeet Singh, Gurpreet Kaur, Manjot Kaur, Manjeet Kumar, Kamalpreet Kaur, Rajni Bala, **Akshay Kumar**	2017	Preferentially grown nanostructured MgB_2C_2: A new material for lightening applications	Superlattice and Microstructures, 103 (2017) 1-8	2.385	0749-6036
37.	Manish Kumar, Pooja Devi, **Akshay Kumar**	2017	Structural analysis of PVP capped silver nanoparticles synthesized at room temperature for optical, electrical and gas sensing properties	Journal of Materials Science: Materials in Electronics, 28 (2017) 5014-5020	2.195	1573-482 X
38.	Virender Kumar, Kulwinder Singh, **Akshay Kumar**, Manjeet Kumar, Karamjit Singh, Ankush Vij, Anup Thakur,	2017	Effect of solvent on crystallographic, morphological and optical properties of SnO2 nanoparticles	Material Research Bulletin, 85 (2017) 202-208	3.355	1873422 7
39.	Paviter Singh, Manpreet Kaur, Gurpreet Kaur,	2017	Effect of processing parameters on synthesis of	Advanced Materials Proceedings, 2 (2017) 128-131		2002-4428

	Bikramjeet Singh, KulwinderSingh, Harpreet Kaur, Mandeep Singh, Manjeet Kumar, Rajni Bala, Ramovatar Meena and **Akshay Kumar**		nanostructured boron carbide			
40.	Gurpreet Kaur, Bikramjeet Singh, Paviter Singh, Manpreet Kaur, Anup Thakur, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2017	Effect of varying reactant precursors on the synthesis of nanostructured iron disulfide	Advanced Material Proceedings, 2(2) (2017) 117-118		2002-4428
41.	Manpreet Kaur, **Akshay Kumar**, Manoj Sharma	2017	Synthesis and characterizations of Mn doped alloyed $Zn_xCd_{1-x}S$ nanocrystals	Advanced Materials Proceedings, 2017, 2(7), 455-457		2002-4428
42.	Bikramjeet Singh, Gurpreet Kaur, Paviter Singh, Kulwinder Singh, Baban Kumar, Ankush Vij, Manjeet Kumar, Rajni Bala, Ramovatar Meena, Ajay Singh, Anup Thakur, **Akshay Kumar**	2016	Nanostructured Boron Nitride With High Water Dispersibility For Boron Neutron Capture Therapy,	Scientific Reports (Nature Publishing Group), 6 (2016) 35535	4.011	2045232 2
43.	Ramandeep Kaur, Palwinder Singh, Kulwinder Singh, **Akshay Kumar**, Anup Thakur	2016	Optical Band Gap Tuning of Sb-Se Thin Films for Xerographic Based Applications,	Superlattices and Microstructures, 98 (2016) 187-193	2.385	0749-603 6
44.	Gurpreet Kaur, Bikramjeet Singh, Paviter Singh, Manpreet Kaur, Karmjeet Kaur Buttar, Kulwinder Singh, Anup Thakur, Rajni Bala, Manjeet Kumar and **Akshay Kumar**	2016	Preferentially grown nanostructured iron disulfide (FeS_2) for removal of industrial pollutants,	RSC Advances, 6 (2016) 99120-99128	3.049	2046-2069
45.	Virender Kumar, Kulwinder Singh, KaramjitSingh, Sudesh Kumari, **Akshay Kumar** and Anup Thakur	2016	Effect of solvent on the synthesis of SnO_2 nanoparticles	AIP Conference Proceedings, 1728 (2016) 020532		1551-7616
46.	Paviter Singh, Manpreet Kaur, Bikramjeet Singh, Gurpreet Kaur, Kulwinder Singh, Manjeet Kumar, Rajni Bala, Anup Thakur and **Akshay**	2016	Gap state related blue light emitting boron-carbon core shell structures	AIP Conference Proceeding, 1728 (2016) 020690		1551-7616

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47.	Kulwinder Singh, Virender Kumar, Ankush Vij, Sudesh Kumari, **Akshay Kumar** and Anup Thakur	2016	Effect of annealing on the structure of chemically synthesized SnO_2 nanoparticles	AIP Conference Proceedings, 1728 (2016) 020536		1551-7616
48.	Paviter Singh, Harwinder Singh, Bikramjeet Singh, Manpreet Kaur, Gurpreet Kaur, Manjeet Kumar, Rajni Bala, **Akshay Kumar**	2016	Synthesis and characterization of nanostructured titanium carbide for fuel cell applications,	AIP Conference Proceeding, 1724 (2016) 020067		1551-7616
49.	Manjeet Kumar, **Akshay Kumar**, A. C. Abhyankar,	2015	Occurrence of non-equilibrium orthorhombic SnO_2 phase and its effect in preferentially grown SnO_2 nanowires for CO detection	RSC Advances, 5 (2015) 35704-35708	3.049	2046-2069
50.	Manjeet Kumar, **Akshay Kumar**, A. C. Abhyankar,	2015	Influence of Texture Coefficient on Surface Morphology and Sensing Properties of W-Doped Nanocrystalline Tin Oxide Thin Films	ACS Applied Materials and Interface 7(6) (2015) 3571-80	8.456	1944-8252
51.	Bikramjeet Singh, Paviter Singh, Manjeet Kumar, Anup Thakur and **Akshay Kumar**	2015	Single step synthesis of nanostructured boron nitride for boron neutron capture therapy	AIP Conference Proceeding, 1661 (2015) 080024		1551-7616
52.	Amandeep Kaur, Tanish Gupta, **Akshay Kumar**, Sanjeev Kumar, Karamjit Singh and Anup Thakur	2015	Electrochemical synthesis of highly crystalline copper nanowires	AIP Conference Proceeding, 1661 (2015) 080012-15		1551-7616
53.	Paviter Singh, Bikramjeet Singh, Manjeet Kumar, **Akshay Kumar**	2014	One step reduction of Boric Acid to boron carbide nanoparticles	Ceramics International 40 (2014) 15331–15334	3.450	1873395 6
54.	Manjeet Kumar, **Akshay Kumar**, A.C. Abhayankar,	2014	SnO_2 based sensors with improved sensitivity and response time	Ceramics International 40 (2014) 8411–8418	3.450	1873395 6
55.	**Akshay Kumar**, K. Singh and O.P. Pandey	2014	one step synthesis and growth mechanism of carbon nano tubes	J. Mater. Sci. Technol., 2014, 30(2), 112-116	5.040	1005-0302
56.	Raj Kumar, **Akshay Kumar,** Sukhbir Singh, O.P. Pandey,	2013	Reduction of WO_3 to WC nano particles by reflux reaction,	Materials Science, Vol. 49, No.1, pp 102-109, July, 2013	0.526	1573-885X

57.	**Akshay Kumar**, K. Singh and O.P. Pandey,	2011	Direct conversion of wolframite ore to Tungsten Carbide nano particles,	Int Journal of Refractory Metals and Hard Materials, 29 (2011) 555-558	2.794	0958-0611
58.	**Akshay Kumar**, K. Singh and O.P. Pandey,	2011	Sintering behavior of Nanostructured WC-Co composite,	Ceramics International, 37 (2011) 1415-1422	3.450	1873395 6
59.	R. Kumar, Ritu Srivastava, **Akshay Kumar**, M. N. Kamalasanan, K.Singh,	2010	Green-light–emitting electroluminescent device based on a new cadmium Complex,	Euro Physics Letters, 90 (2010) 57004	1.886	1286-4854
60.	**Akshay Kumar**, K. Singh and O.P. Pandey	2010	Optimization of processing parameters for the synthesis of tungsten carbide (WC) nanoparticles through solvo thermal route	Physica E- Low Dimensional Systems and Nanostructures,42 (2010) 2477-2483	3.176	1386-9477
61.	**Akshay Kumar**, K. Singh and O.P. Pandey,	2009	Reduction of WO_3 to nano-WC by thermo-chemical reaction route,	Physica E- Low Dimensional Systems and Nano structures, 41 (2009) 677–684	3.176	1386-9477
62.	**Akshay Kumar**, K. Singh and O.P. Pandey,	2007	Development of Nanocomposite WC-Co Materials-An Overview,	Nano Science and Nano Technology-An Indian J 1(2), (2007) 59-69		0974-7494

Book Chapter Published

Sl. No.	Name	Year of Publication	Title	ISBN No.
1.	Gurpreet Kaur, Manjot Kaur, Anup Thakur, **Akshay Kumar**	2019	FeS_2 Pyrite Nanostructures: An Efficient Performer in Photocatalysis In book: Environ. Chemistry for Sustainable World, Vol. 35, : Green Methods for Wastewater Treatment, *Springer Nature*	978-3-030-16427 -0

Book Published

Sl. No.	Name	Year of Publication	Title	Author or Co-author	ISBN No.
1.	Akshay Kumar	2012	"Nanostructured Tungsten Carbide and its Composites with Cobalt" In LAMBERT Academic Publishing GmbH Germany	Sole Author	978-3-8484-9826-0

Research Projects

S.N.	Title of the Project	Year	Amount	Agency/ Project no.	Status
1	Synthesis and applications of boron carbide nanoparticle for neutron capture cancer treatment therapy	2014-2018	25.13	BRNS-DAE Project no. 34/14/41/2014-BRNS-2035	Completed
2	Hexagonal Boron based based nanocomposites for photodetectors and gas sensing applications	2017-2020	36.08	SERB-DST Project no. EMR/2016/002815	Ongoing