

## Profile Page



Name : Dr Ajay Bansal  
Designation : Professor  
Department : Chemical Engineering  
Qualification : Ph D (Panjab University, Chandigarh)  
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### **Research Interests :**

Trickle Bed Reactors, Multiphase Flow, Advanced Oxidation Processes, Photo-nano-catalysis, Waste Water Treatment, Solid Waste Management, New and Renewable Energy

### **Other Profile Links :**

#### **Google Scholar Link :**

Google Scholar Profile [Click Here](#)

#### **Personal Web Link :**

Scopus Profile [Click Here](#) Reseachgate Profile [Click Here](#) Orcid profile [Click Here](#) Vidwan Profile [Click Here](#) Publons [Click Here](#)

### **Journal Publications :**

Year	Journal	Publication
2020	Solar Energy Volume 196, 15 January 2020, Pages 589-596	Kumar, V., Gupta, R., Bansal, A., Role of chenodeoxycholic acid as co-additive in improving the efficiency of DSSCs
2020	January 2020 Chemical Engineering & Technology	Nikesh Kumar, Renu Gupta, Ajay Bansal, Effect of Surface Tension on Hydrodynamics and Mass Transfer Coefficient in Airlift Reactors
2019	Journal of Cleaner Production 243 (2020) 118492	Sodhi, V., Bansal, A., Jha, M.K., Minimization of excess bio-sludge and pollution load in oxic-settling-anaerobic modified activated sludge treatment for tannery wastewater
2018	Chemical Engineering Research and Design Volume 136, August 2018, Pages 315-323	Nikesh Kumar, Ajay Bansal, Renu Gupta, Shear rate and mass transfer coefficient in internal loop airlift reactors involving non-Newtonian fluids
2018	BIORESOURSE TECHNOLOGY Volume: 263 Pages: 613-624	Sodhi, Vijay; Ajay Bansal; Mithilesh Kumar Jha Excess sludge disruption and pollutant removal from tannery effluent by upgraded activated sludge system

2018	European Journal of Environmental and Civil Engineering Volume 22, 2018 - Issue 11	M K Kaushik, Arvind kumar, Ajay Bansal, Performance of tire chips–gravel combinations with nonwoven geotextile and encapsulated tire chips layers used as filter/separator under incremental stress levels
2017	Electronic Journal of Geotechnical Engineering, 210, 3113-36	A Sharma, MK Kaushik, S Naval, A Kumar, A Bansal, "Assessment of ground water quality and feasibility of tire derived aggregates for use as leachate drainage material"
2017	European Journal of Environmental and Civil Engineering, 1-34	MK Kaushik, A Kumar, A Bansal, "Performance of tire chips and gravel combinations with nonwoven geotextile and encapsulated tire chips layers used as filter/separator under incremental stress levels"
2016	Electronic Journal of Geotechnical Engineering, 210, 3453-3473	D Thakur, MK Kaushik, A Kumar, A Bansal, "Estimation of Service Life for Tire Derived Aggregate Drainage Layer of Leachate Collection System"
2016	Bulletin of Chemical Reaction Engineering & Catalysis, 11(2), 140	P Kumar, AK Sarma, A Bansal, MK Jha, "Formulation of SrO-MBCUS Agglomerates for Esterification and Transesterification of High FFA Vegetable Oil"
2016	Geotechnical and Geological Engineering, 34(1), 167-191	MK Kaushik, A Kumar, A Bansal, "Drainage performance of different sizes tire chips used alone and mixed with natural aggregates as leachate drainage layer material"
2016	Electronic Journal of Geotechnical Engineering 210.09(09):3113-3136	Anchal Sharma, M. K. Kaushik, Arvind Kumar, Ajay Bansal, Assessment of Ground Water Quality and Feasibility of Tire Derived Aggregates for Use as Leachate Drainage Material
2015	Indian Journal of Chemical Technology, 22(3-4), 95-104	Jatinder Kumar, Ajay Bansal," CFD simulations of immobilized-titanium dioxide based annular photocatalytic reactor: Model development and experimental validation"
2015	Bulletin of Chemical Reaction Engineering & Catalysis, 10(3), 221-229	P Kumar, AK Sarma, MK Jha, A Bansal, B Srivastava, "Utilization of Renewable and Waste Materials for Biodiesel Production as Catalyst"
2015	Royal Society of Chemistry Advances, 2015(5), 9946-9954	Prashant Kumar, Mohammad Aslam, Neetu Singh, Sunil Mittal, Ajay Bansal, Mithilesh Kumar Jha and Anil Kumar Sarma, "Characterization, activity and process optimization with a biomass-based thermal power plant's fly ash as a potential catalyst for biodiesel production"
2015	Journal of Geotechnical and Geological Engineering, 33(4), 1081-1098	MK Kaushik, A Kumar, A Bansal, "Performance Assessment of Gravel & Tire Chips mixes as Drainage layer Material using real active MSW landfill leachate"
2014	International Journal of Geotechnical Engineering 9(5):1939787914Y.000	MK Kaushik, A Kumar, A Bansal, "Performance assessment of tire chips as gravel mixes as leachate drainage layer material"
2014	Electronic Journal of Geotechnical Engineering, 19(Z6), 17495-17513	MK Kaushik, A Kumar, A Bansal, "Geo-Environmental Prospectives and Development Plans for a new MSW landfill site using Tire Chips as Leachate Drainage Materials"
2014	Journal of Industrial Pollution Control, 30(1), 129-38	Kohli D, Garg S, Jana A K, Bansal A, Chopra P, "Sorption of para-nitrophenol and para-chlorophenol using cross-linked starch based bio-adsorbent: Thermodynamics, kinetics column studies"
2013	International Journal of Environmental Science & Technology, 10(6), 1265-1274	Neetu Divya, Ajay Bansal and A K Jana, "Photocatalytic degradation of azo dye Orange II in aqueous solutions using copper-impregnated titania"
2013	Water Air Soil Pollution, 224, 1452	Jatinder Kumar, Ajay Bansal, "A comparative study of immobilization techniques for photocatalytic degradation of Rohdamine B using nanoparticles of titanium dioxide"
2013	Indian Journal of Chemical Technology, 20, 341-345	Shailendra Kumar Singh, Ajay Bansal*, M K Jha & Rahul Jain, "Production of biodiesel from wastewater grown Chlorella minutissima"

2013	Materials Science Forum, 764, 130-150	Jatinder Kumar, Ajay Bansal, "Photocatalysis by Nanoparticles of Titanium Dioxide for Drinking Water Purification: A Conceptual and State-of-Art Review"
2013	Materials Science Forum, 734, 349-363	Neetu Divya, Ajay Bansal and A K Jana, "Nano-photocatalysts in the treatment of colored wastewater-A Review"
2013	Journal of Environmental Chemical Engineering, 1(3), 398-405	Jatinder Kumar, Ajay Bansal, "Photocatalytic degradation in annular reactor: Modelization and optimization using computational fluid dynamics (CFD) and response surface methodology (RSM)"
2012	Bioprocess and Biosystems Engineering, 36(8), 1011-1018	Renu Gupta, Ajay Bansal, "Axial Dispersion in Packed Bed Reactors involving viscoelastic and viscoelastic non-Newtonian fluids"
2012	Heat and Mass Transfer, 48(12), , 2069-77	Jatinder Kumar, Ajay Bansal, "CFD Modeling of Hydrodynamics and Mass Transfer of Rhodamine Bin Annular Reactor"
2012	International journal of Environmental Science and Technology, 9(3), 479-84	Jatinder Kumar, Ajay Bansal, "Photodegradation of Amaranth in Aqueous Solution Catalyzed by immobilized nanoparticles of Titanium Dioxide"
2012	Bio Resource Technology, 104, 257-65	Shailendra K Singh, Ajay Bansal, M K Jha, A Dey, "An integrated approach to remove Cr (VI) using Chlorella Minutissima grown in nutrient rich sewage waste water"
2012	Indian Chemical Engineer, 54(3), 180-189	R Gupta, A Bansal, "Quantifying effect of surface tension and viscosity on dispersion in packed bed reactors"
2012	Materials Science Forum, 712, 85-104	Neetu Divya, Ajay Bansal and A K Jana, "Photocatalytic activity of transition metal ion doped titania for Amaranth dye degradation"
2012	International Journal of Environmental Sciences, 2(2), 1492-1505	Gunjan Bhalla, P K Swamee, Arvind Kumar, Ajay Bansal, "Assessment of Groundwater quality near municipal solid waste land by an aggregate index method"
2011	Environmental Technology, iFirst, 1-10	Chhavi Rani, A K Jana, Ajay Bansal, "Potential of different white rot fungi to decolourize azo dyes in absence of external carbon source"
2011	Indian Chemical Engineer, 53(4), 211-19	S Kumar Singh, A Bansal, MK Jha, A Dey, "Comparative studies on uptake of wastewater nutrients by immobilized cells of Chlorella minutissima and dairy waste isolated algae"
2011	Research Journal of Chemistry and Environment, 15(2), 17-24	Chhavi Rani, A K Jana, Ajay Bansal, "Comparative study of different white rot fungi in decolorization of acid, direct and reactive textile azo dyes"
2011	International Journal of Chemical and Biological Engineering, 4(1), 44-50	Vijay Sodhi, Ajay Bansal, "Analysis of foaming flow instabilities for dynamic liquid saturation in trickle bed reactor"
2010	Chemical and Biochemical Engineering Quarterly, 24(3), 295-300	Ritu Gupta , Ravinder K.Wanchoo and Ajay Bansal, "Interfacial Tension of some Newtonian and non-Newtonian fluids by Drop -Weight method"
2010	Industrial and Engineering Chemistry Research, 49(19), 925-28	Renu Gupta, Ajay Bansal, "Effect of Bed Configuration on Dispersion in a Packed-Bed Reactor"
2010	International Journal of Computers and Applications, 32(1), 99-103	Jatinder Kumar, Ajay Bansal, "Application of Neural Network For Estimating Properties of Diesel "Biodiesel blends"
2010	Bulletin of Chemical Reaction Engineering & Catalysis, 5(1), 31-37	Renu Gupta, Ajay Bansal, "Hydrodynamic studies on trickle bed reactor for foaming liquids"
2010	International Journal of Chem Tech Research, 2(3), 1537-1543	Jatinder Kumar, Ajay Bansal, "Dual effect of Photocatalysis and adsorption in degradation of Azorubine dye using Nano sized TiO <sub>2</sub> and activated carbon immobilized with different Techniques"
2010	International Journal of Chem Tech Research, 2(3), 1547-52	Jatinder Kumar, Ajay Bansal, "Sol-gel derived films of nano-crystals of TiO <sub>2</sub> for photocatalytic degradation of Azorubine dye"

2010	Geotechnical and Geological Engineering, 28, 661-69	Gunjan Bhalla, Arvind Kumar, Ajay Bansal, "Performance of Scarp-Tire-Shreds as a Potential Leachate Collection Medium"
2009	Industrial and Engineering Chemistry Research, 48(7), 3341-3350	Ajay Bansal, R K Wanchoo, S K Sharma, "Dynamic liquid saturation in a Trickle Bed Reactor Involving Newtonian/Non-Newtonian Liquid-Phase"
2009	Bulletin of Chemical Reaction Engineering & Catalysis, 4(2), 43-53	Neetu Divya, Ajay Bansal and A K Jana, "Surface Modification, Characterization and Photocatalytic Performance of Nano-Sized Titania modified with Silver and Bentonite clay"
2009	Bulletin of Chemical Reaction Engineering & Catalysis, 4(1), 16-22	K.R. Ayyappan, Amrit Toor , Ritu Gupta, Ajay Bansal and R.K. Wanchoo, "Catalytic Hydrolysis of Ethyl Acetate using Cation Exchange Resin (Amberlyst 15) : A Kinetic Study"
2008	Chemical Engineering Communications, 195, 1106-1127	Ajay Bansal, R K Wanchoo, S K Sharma, "Two-Phase Pressure Drop in a Trickle Bed Reactor Involving Newtonian/Non-Newtonian Liquid-Phase"

### Conference Publications :

Year	Conference	Publication
2018	International Conf. on Environmental Challenges: A Global concern (ICEC-10)At: Kanya Maha Vidyalaya, Jalandhar, India	M. K. Kaushik, Arvind Kumar, Ajay Bansal, Natural attenuation mechanisms for the removal of specific landfill leachate pollutants
2016	Advances in Chemical and Environmental Engineering	Saurabh patel , Ajay Bansal, "Studies on fire retardant wood"
2016	Advances in Chemical and Environmental Engineering	K Mehta, Ajay bansal, M K Jha, N Divya, "Fly ash based zeolite as a potential photocatalyst"
2016	Advances in Chemical and Environmental Engineering	Renuka, Renu Gupta, Ajay bansal, Rajmohan aetkuri, Nikesh Kumar, "Prediction of Mass Transfer Coefficient in gas-liquid bubble column for Newtonian and non-Newtonian fluids"
2016	Advances in Chemical and Environmental Engineering	Nikesh Kumar, Ajay Bansal, Renu Gupta, "Performance of Airlift Recators involving non-Newtonian fluids-a review"
2016	Advances in Chemical and Environmental Engineering	Vikash Kumar, Simranjit Kaur, Ajay Bansal, Renu Gupta, "A review on development of low cost dye sensitized solar cell"
2016	Advances in Chemical and Environmental Engineering	Nasir Ahmad, F Q Mir, Ajay Bansal, S Verma, "Preparation and Characterization of low cost membrane from locally available clay"
2016	Advances in Chemical and Environmental Engineering	Simranjit Kaur, Vikash Kumar, Renu Gupta, Ajay bansal, "Reactive dividing wall distillation column: an emerging separation technology: a review"
2016	Advances in Chemical and Environmental Engineering	Vijay Sodhi, Ajay bansal, M K jha, "Response of an Anoxic-Aerobic Activated Sludge operation for synthetic and real Industrial wastewater"

### Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISS N No.	Year
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Book Chapter	"Biotechnological exploitation of cyanobacteria and microalgae for bioactive compounds" in the book "Biotechnological Production of Bioactive Compounds"	Elsevier	Shailendra Kumar Singh, Rupali Kaur, Ajay Bansal, Suman Kapur, Shanthi Sundaram	ISBN: 978-0-444-64323-0	2020
Book Chapter	Minimization of Bio-sludge from Tannery Effluent Using Anoxic Modified Conventional Activated Sludge Process	Springer, Singapore	Vijay Sodhi, Ajay Bansal, Mithilesh Kumar Jha	978-981-13-7009-0	2019
Book Chapter	Synthesis of rGO/TiO <sub>2</sub> Nanocomposite for the Efficient Photocatalytic Degradation of RhB Dye	Springer, Singapore	Vikash Kumar, Ajay Bansal, Renu Gupta	Vikash KumarAjay BansalEmail authorRenu Gupta	2019
Book Chapter	Synthesis and Assessment of Photocatalytic activities of undoped and Mn doped ZnO nanoparticles	Novel Perspectives and Prospects published by McGraw Hill	Rubal Preet, Ajay Bansal, Renu Gupta, Sukhdeep Kaur		2015
Book	Engineering Applications of Nanoscience and Nanomaterials	Trans Tech Publications Ltd. Keruzstrasse Switzerland	Ajay Bansal and Rajesh Tayade	ISBN-13: 978-3-03785-701-4	2013
Book Chapter	Degradation of Acid Red 27 in Sunlight Using TiO <sub>2</sub>	Trans Tech Publications Ltd., Kreuzstrasse 10, CH-8635 Durnten-Zurich Switzerland	Jatinder Kumar, Ajay Bansal	ISBN-13:978-3-03785-547-8/ISSN 0255-5476	2013
Book Chapter	Effect of Nano-Catalysts on Orange G Degradation	Dorling Kindersley (India) Pvt. Ltd., Licensees of Pearson Education in South Asia	Neetu Divya, Ajay Bansal and A K Jana	ISBN: 978-81-317-8991-9	2013
Monograph	CFD Simulations-Sieve Tray Design, Modeling and Enhancement	Lambert Academic Publishing GmbH and C. Germany	Sumit Singh, Ajay Bansal		2013
Book	Photocatalytic Degradation of Amaranth Dye: Concepts and Methods	Lambert Academic Publishing GmbH and C. Germany	Jatinder Kumar, Ajay Bansal		2010

## Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Principal Investigator	Sponsored	Effect of Surface Tension and Foaming on Mass Transfer in packed Bed Reactor	TEQIP-II, NIT Jalandhar	Dec-16	Mar-17	42093	Completed	Dr Renu Gupta
Principal Investigator	Sponsored	Studies on the Fabrication of Dye-Sensitized Solar Cell	TEQIP-II, NIT Jalandhar	Dec-16	Mar-17	35622	Completed	Dr Renu Gupta
Principal Investigator	Sponsored	Design and operational Analysis of upgraded treatment for real industrial wastewater	TEQIP-II, NIT Jalandhar	2015	2016	50,000	Completed	Dr M K Jha
Principal Investigator	Sponsored	Study on Treatment of Ground Water of AB Sugars Ltd.	AB Sugars Ltd & Dasuya Hoshiarpur	2014	2015	1.0 Lac	Completed	Dr Jatinder Kumar
Principal Investigator	Sponsored	IST-DST project for dept of Chemical Engineering	DST, Govt of India	2015	2020	1.5 Crore	Ongoing	Dr S Bajpai Dr M K Jha
Principal Investigator	Sponsored	Mass Transfer Studies in Lab Scale Airlift Reactor	TEQIP-II, NIT Jalandhar	Dec-2015	Dec-2016	50,000	Completed	Dr Renu Gupta

### Events Organized :

Category	Type	Title	Venue	From	To	Designation
One Week Short Term Course	National	Energy and Environment management	NIT Jalandhar	19.10.13	23.10.13	Chief Coordinator
Short Term Training Programme	National	Recent Advances in Energy Technology	NIT, Jalandhar	02-06-2014	06-06-2014	Coordinator
International Summer Term Course	International	GIAN Course on Landfills and Geoenvironmental Engineering	NIT, Jalandhar	30-05-2016	03-06-2016	Coordinator

Conference	National	Advances in Chemical and Environmental Engineering	NIT, Jalandhar	22-04-2016	23-04-2016	Organising Secretary
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### Professional Affiliations :

Designation	Organization
Fellow	The Institution of Engineers (India) Kolkata
Fellow Membership (FICER)	Global Earth Society Society for Environmental Energy and Development
Fellow	Indian Institute of Chemical Engineers Kolkata
Certified Energy Auditor	National Productivity Council
Certified Energy Manager	National Productivity Council

### PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Prashant kumar	Process Optimization of Biodiesel Production using Hybrid Hetrogeneous Catalyst	Completed	2015	Dr M K Jha, Dr Anik K Sarma
Jatinder Kumar	Modeling and simulation of Immobilized titania based annular photocatalytic Recator using CFD	Completed	2014	
Mohan K Kaushik	Permeability Studies on tire shreds as leachate collection medium	Completed	2014	Dr A K Agnihotri
Chhavi Rani	Biodegradation of Azo Dyes by Suspension and immobilized	Completed	2012	Dr A K Jana
Renu Bala	Dispersion Studies on Trickle Bed Reactors	Completed	2012	
Shailendra Kumar Singh	Biosorption of Heavy Metals using Chlorella minutissima	Completed	2012	Dr M K Jha, Dr Apurba Dey
Neetu Divya	Studies on Photocatalytic Degradation of Dyes	Completed	2011	Dr A K Jana
Gunjan Bhalla	Use of scrap Tire Shreds as potential Leachate Collection Medium	Completed	2010	Dr A K Agnihotri

### Admin. Responsibilities :

Position Held	Organization	From	To
Vice President	Indian Institute of Chemical Engineers, Kolkata, IICChE	1.1.18	31.12.18
Vice President	Indian Institute of Chemical Engineers, Kolkata, IICChE	1.1.13	31.12.13
Controller of Examinations	Indian Institute of Chemical Engineers, Kolkata, IICChE	1.1.11	31.12.11
Head, Dept of Chemical Engineering	NIT Jalandhar	6.9.10	4.9.13
President, Faculty Club	NIT Jalandhar	1.1.07	31.12.07
Head, Dept of Chemical Engineering	NIT Jalandhar	26.1.17	Till date
Deputy Coordinator TEQIP-II	NIT Jalandhar	20.2.13	4.9.14
Associate Dean (research & Consultancy)	NIT Jalandhar	31.1.15	24.1.17
Warden, Hostel No. 3	NIT Jalandhar	3.10.06	29.10.10
Deputy Chief warden	NIT Jalandhar	5.9.07	29.10.10
Chairman, Postgraduate Committee in Engineering	NIT Jalandhar	5.9.14	

Nodal Office, Equity Action Plan TEQIP-II	NIT Jalandhar	5.9.14	
In-charge, Mass Transfer lab	NIT Jalandhar		
Chairman	Doaba Regional Centre of IChE	1.7.16	Till Date
Vice Chairman	Doaba Regional Centre of IChE	1.7.12	30.6.16
Secretary	Doaba Regional Centre of IChE	1.7.08	30.6.10
Chairman Board of Studies in Chemical Engineering	NIT Jalandhar	6.9.10	4.9.13
Chairman Board of Studies in Chemical Engineering	NIT Jalandhar	26.1.17	Till date
Member Board of Studies in Chemical Engineering, Food Technology, Energy Studies	Panjab University, Chandigarh	1.4.13	31.3.15

### **Award and Honours :**

<b>Title</b>	<b>Activity</b>	<b>Given by</b>	<b>Year</b>
Gold Medal	For securing Overall 1st position in B Tech in University	Pt. Ravishankar Shukla University Raipur	1991
Combine Merit Certificate	For Securing Overall 1st Rank in Combined Merit List	Ravishankar Vishwavidyalaya Raipur	1991
Merit Certificate	For Securing 1st Position in 4th year of Chemical Engineering	Ravishankar Vishwavidyalaya Raipur	1990
Merit Certificate	For Securing 1st Position in 3rd year of Chemical Engineering	Ravishankar Vishwavidyalaya Raipur	1989
Merit Certificate	For Securing 4th Position in 1st year of B E. in all Engineering Branches	Ravishankar Vishwavidyalaya Raipur	1987
Silver Medal	For Securing 11th position in Kurukshetra University, Kurukshetra	S A Jain College Ambala City	1985
Bronze Medal	For Securing 3rd position in state in Matriculation examination	Himachal Pradesh Board of School Education, Dharamshala	1984
National Scholastic Excellence Award	For securing 3rd position state in Matriculation Examination	HMT Bangalore	1984
Merit Certificate	National Scholarships Scheme	Government of Himachal Pradesh	1984