

# Anirban Dhar

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RESEARCH INTERESTS	Computational Hydraulics and Groundwater Hydrology	
PROFESSIONAL EXPERIENCE	<b>Indian Institute of Technology Kharagpur</b> , Kharagpur, INDIA Assistant Professor in Department of Civil Engineering (Dec, 2008- till date) <b>James Cook University</b> , Townsville, AUSTRALIA Visiting Scholar in School of Engineering and Physical Sciences (Jul, 2008- Dec, 2008)	
EDUCATION	<b>Indian Institute of Technology Kanpur</b> , Kanpur, INDIA Ph.D. in Civil Engineering (2008) <b>Indian Institute of Technology Kanpur</b> , Kanpur, INDIA M.Tech. in Civil Engineering (2004) <b>University of North Bengal</b> , INDIA B.E. in Civil Engineering (2002)	
AWARDS/ HONORS/ SCHOLARSHIPS	<ul style="list-style-type: none"><li>• Member of DPR Appraisal Committee of IIT(C) for NMCG [for Third Party Appraisal (TPA)]</li><li>• Member of Leadership Team of the IAHR (International Association for Hydro-Environment Engineering and Research) Groundwater Hydraulics and Management Committee (2017-2019).</li><li>• Member of Executive Council of Indian National Committee-International Association of Hydrogeologists (IAH) (2015-2016)</li><li>• "Young Scientist Award" (2014) by INC-International Association of Hydrogeologists</li><li>• "IEI Young Engineers Award 2013-2014" in Environmental Engineering</li><li>• Endeavour Research Fellowship 2008 (International Fellowship Funded by Australian Govt.)</li><li>• Cash Award - DRPG, IIT Kanpur (2006)</li><li>• University Silver Medal for B.E. (Civil Engg.), North Bengal University, WB, INDIA.</li></ul>	

1. Munusamy, S.B., **Dhar, A.** "Analytical Solution of Groundwater Waves in Unconfined Aquifers with Sloping Boundary" *Sadhana*, [Accepted]. [**SCI Impact Factor: 0.349, Citation: -**]
2. Pahar, G., **Dhar, A.** "On Modification of Pressure Gradient Operator in Integrated ISPH for Multifluid and Porous Media Flow with Free-surface" *Engineering Analysis with Boundary Elements*, [Accepted]. [**SCI Impact Factor: 1.862, Citation: -**]
3. Pahar, G., **Dhar, A.** "Numerical Modelling of Free-surface Flow-Porous Media interaction using Divergence-free Moving Particle Semi-Implicit Method" *Transport in Porous Media*, doi:doi:10.1007/s11242-017-0852-x, 2017. [**SCI Impact Factor: 1.653, Citation: -**]
4. Sahoo, M., Das, T., Kumari, K., **Dhar, A.** "Space-Time Forecasting of Groundwater Level using Hybrid Soft Computing Model" *Hydrological Sciences Journal*, 62(4), 561-574, 2017. [**SCI Impact Factor: 2.182, Citation: -**]
5. Pahar, G., **Dhar, A.** "Coupled incompressible Smoothed Particle Hydrodynamics model for continuum-based modelling sediment transport" *Advances in Water Resources*, 102, 84-98, 2017. [**SCI Impact Factor: 4.349, Citation: -**]
6. Pahar, G., **Dhar, A.** "Robust boundary treatment for open-channel flows in divergence-free incompressible SPH" *Journal of Hydrology*, 546, 464-475, 2017. [**SCI Impact Factor: 3.043, Citation: -**]
7. Pahar, G., **Dhar, A.** "Mixed Miscible-Immiscible Fluid Flow Modelling with Incompressible SPH Framework" *Engineering Analysis with Boundary Elements*, 73, 50-60, 2016. [**SCI Impact Factor: 1.862, Citation: 01**]
8. Sahoo, S., **Dhar, A.**, Kayet, N., Kar, A. "Detecting water stress scenario by Land Use/Land Cover Changes in an Agricultural Command Area" *Spatial Information Research*, 25(1), 11-21, 2016. [**SCI Impact Factor: -, Citation: -**]
9. Pahar, G., **Dhar, A.** "A Robust Volume Conservative Divergence-free ISPH Framework for Free-surface Flow Problems" *Advances in Water Resources*, 96, 423-437, 2016. [**SCI Impact Factor: 4.349, Citation: 04**]
10. Sahoo, M., Sahoo, S., **Dhar, A.**, Pradhan, B. "Effectiveness Evaluation of Objective and Subjective Weighting Methods for Aquifer Vulnerability Assessment in Urban Context" *Journal of Hydrology*, 541, 1303-1315, 2016. [**SCI Impact Factor: 3.043, Citation: 03**]
11. Mandal, U., Sahoo, S., Munusamy, S.B., **Dhar, A.**, Panda, S.N., Kar, A., Mishra, P.K. "Delineation of Groundwater Potential Zones of Coastal Groundwater Basin Using Multi-Criteria Decision Making Technique" *Water Resources Management*, 30 (12), 4293-4310, 2016. [**SCI Impact Factor: 2.437, Citation: 01**]
12. Pahar, G., **Dhar, A.** "Modeling free-surface flow in porous media with modified incompressible SPH" *Engineering Analysis with Boundary Elements*, 68, 75-85, 2016. [**SCI Impact Factor: 1.862, Citation: 05**]
13. Sahoo, S., **Dhar, A.**, Kar, A., Ram, P. "Grey Analytic Hierarchy Process Applied to Effectiveness Evaluation for Groundwater Potential Zone Delineation" *Geocarto International*, 1-18, 2016. [**SCI Impact Factor: 1.380, Citation: 02**]
14. Sahoo, S., **Dhar, A.**, Kar, A., Chakraborty, D. "Index-based groundwater vulnerability mapping using quantitative parameters" *Environmental Earth Sciences*, 75:522, 2016. [**SCI Impact Factor: 1.765, Citation: 05**]

15. Sahoo, S., **Dhar, A.**, Kar, A. "Environmental vulnerability assessment using Grey Analytic Hierarchy Process based model" *Environmental Impact Assessment Review*, 56, 145-154, 2016. [**SCI Impact Factor: 2.922, Citation: 11**]
16. **Dhar, A.**, Sahoo, S., Sahoo, M. "Identification of Groundwater Potential Zones Considering Water Quality Aspect" *Environmental Earth Sciences*, 74(7), 5663-5675, 2015. [**SCI Impact Factor: 1.765, Citation: 07**]
17. Munusamy, S.B., **Dhar, A.** "Homotopy Perturbation Method-Based Analytical Solution for Tide-Induced Groundwater Fluctuations" *Ground Water*,54(3), 440-447, 2015. [**SCI Impact Factor: 1.947, Citation: -**]
18. **Dhar, A.**, Sahoo, S., Mandal, U.,Dey, S., Bishi, N., Kar, A. "Hydro-Environmental Assessment of A Regional Ground Water Aquifer: Hirakud Command Area (India)." *Environmental Earth Sciences*, 73(8), 4165-4178, 2015. [**SCI Impact Factor: 1.765, Citation: 08**]
19. **Dhar, A.**, Sahoo, S., Dey, S., Sahoo, M. "Evaluation of Recharge and Groundwater Dynamics of a Shallow Alluvial Aquifer in Central Ganga Basin, Kanpur (India)" *Natural Resources Research* , 23(4), 409-422, 2014. [**SCI Impact Factor:-, Citation: 09**]
20. Pahar, G., **Dhar, A.** "A Dry Zone-Wet Zone Based Modeling of Surface Water and Groundwater Interaction for Generalized Ground Profile" *Journal of Hydrology* , 519, 2215-2223, 2014. [**SCI Impact Factor: 3.043, Citation: 06**]
21. **Dhar, A.** "Geostatistics-based design of regional groundwater monitoring framework" *ISH Journal of Hydraulic Engineering* , 19(2), 80-87,2013. [**SCI Impact Factor: -, Citation: 06**]
22. Mandal, U., **Dhar, A.**, Panda, S.N. "Integrated Land and Water Resources Management Framework for Hirakud Canal Subcommand (India) Using Gray Systems Analysis" *Journal of Water Resources Planning and Management*, 139(6), 733-740, 2012. [**SCI Impact Factor: 2.521, Citation: 02**]
23. Deb, K., **Dhar, A.**, Bhagat,P. "Evolutionary approach for optimal stability analysis of geosynthetic-reinforced stone column-supported embankments on clay" *KSCCE Journal of Civil Engineering*, 16(7), 1185-1192, 2012. [**SCI Impact Factor: 0.6, Citation: 06**]
24. **Dhar, A.**, Patil, R.S "Multiobjective Design of Groundwater Monitoring Network Under Epistemic Uncertainty" *Water Resources Management*, 26(7), 1809-1825, 2012. [**SCI Impact Factor: 2.437, Citation: 12**]
25. Deb, K., **Dhar, A.** "Parameter Estimation for a System of Beams Resting on Stone Column-Reinforced Soft Soil" *International Journal of Geomechanics* , 13(3), 222-233, 2011. [**SCI Impact Factor: 1.197, Citation: 09**]
26. Datta, B.,Chakrabarty, D., **Dhar, A.** "Identification of unknown groundwater pollution sources using classical optimization with linked simulation" *Journal of Hydro-environment Research*, 5(1), 25-36, 2011. [**SCI Impact Factor: 1.971, Citation: 38**]
27. Deb, K., **Dhar, A.** "Optimum design of stone column-improved soft soil using multiobjective optimization technique" *Computers and Geotechnics*, 38(1), 50-57, 2011. [**SCI Impact Factor: 1.705, Citation: 13**]

28. **Dhar, A.**, Datta, B. "Logic-Based Design of Groundwater Monitoring Network for Redundancy Reduction" *Journal of Water Resources Planning and Management*, 136(1), 88-94, 2009. [**SCI Impact Factor: 2.521, Citation: 25**]
29. **Dhar, A.**, Datta, B. "Saltwater Intrusion Management of Coastal Aquifers. II: Operation Uncertainty and Monitoring." *Journal of Hydrologic Engineering*, 14(12), 1273-1282, 2009. [**SCI Impact Factor: 1.58, Citation: 19**]
30. **Dhar, A.**, Datta, B. "Saltwater Intrusion Management of Coastal Aquifers. I: Linked Simulation-Optimization" *Journal of Hydrologic Engineering*, 14(12), 1263-1272, 2009. [**SCI Impact Factor: 1.58, Citation: 74**]
31. Datta, B., Vennalakanti, H., **Dhar, A.**. "Modeling and Control of Saltwater Intrusion in a Coastal Aquifer of Andhra Pradesh, India" *Journal of Hydro-environment Research*, 3(3), 148-159, 2009. [**SCI Impact Factor: 1.971, Citation: 36**]
32. Datta, B., Chakrabarty, D., **Dhar, A.**. "Simultaneous identification of unknown groundwater pollution sources and estimation of aquifer parameters" *Journal of Hydrology*, 376(1-2-376), 2009. [**SCI Impact Factor: 3.043, Citation: 38**]
33. **Dhar, A.**, Datta, B. "Global Optimal Design of Ground Water Monitoring Network Using Embedded Kriging". *Ground Water*, 47(6), 2009. [**SCI Impact Factor: 1.947, Citation: 22**]
34. Datta, B., Chakrabarty, D., **Dhar, A.**. "Optimal Dynamic Monitoring Network Design and Identification of Unknown Groundwater Pollution Sources", *Water Resources Management*, 23(10), 2008. [**SCI Impact Factor: 2.437, Citation: 41**]
35. **Dhar, A.**, Datta, B. "Optimal operation of reservoirs for downstream water quality control using linked simulation optimization" *Hydrological Processes*, 22(6), 2008. [**SCI Impact Factor: 2.768, Citation: 34**]
36. **Dhar, A.**, Datta, B. "Multiobjective Design of Dynamic Monitoring Networks for Detection of Groundwater Pollution" *Journal of Water Resources Planning and Management*, 133(4), 2007. [**SCI Impact Factor: 2.521, Citation: 34**]
37. **Dhar, A.**, Datta, B. "Chance constrained water quality management model for reservoir systems" *ISH Journal of Hydraulic Engineering*, 12(3), 2006. [**SCI Impact Factor:-, Citation: 05**]

**Ph.D. Guidance:** 1 Completed (Joint)

- Prabir Biswas (2016): "Physically Based Numerical Simulation Model for Conjunctive Water use in Basin Irrigated Canal Command Areas" jointly with *Prof. Dhrubajyoti Sen* [Department of Civil Engineering, *IIT Kharagpur*]

**M.S. (by Research):** 1 Completed

- Satiprasad Sahoo (2016): "Evaluating the Effectiveness of Methods for Identification of Groundwater Potential, Vulnerability and Environmental Vulnerability Zones" [*School of Water Resources, IIT Kharagpur*]

**M.Tech. :** 17 Completed

RESEARCH  
GUIDANCE

## SUBJECTS TAUGHT At Undergraduate Level

- CE21003: Hydraulics
- CE31104: Statistical Methods in Hydrology
- CE29006: Water Resources Engineering Laboratory
- CE13001: Engineering Drawing and Computer Graphics

## At Graduate Level

- CE60113/CE60057: Geohydraulics
- CE60002: Advanced Computational Hydraulics
- CE60003: Applied Hydrology
- CE60060: River Engineering
- CE69003: Hydraulic and Water Res. Engg. Lab.
- CE69004: Case Studies in Computational Hydraulics and Sediment Transport
- WM69004: Planning And Design Of Water Resource Projects

## GIAN Course

- 151001C07 : Groundwater Modeling Characterization and Management, Foreign Faculty : Professor Bithin Datta, Australia (Duration : 05-12-2016 to 13-12-2016)

SHORT TERM  
COURSES AND  
LECTURES

## Short Term Courses

- Advances in Numerical Simulation Techniques for Hydraulics, Hydrology and Water Resources Management-I (ANST-HHWM-I) in 2015
- Advances in Numerical Simulation Techniques for Hydraulics, Hydrology and Water Resources Management-II (ANST-HHWM-II) in 2015

## TALKS

- Groundwater contaminant source identification: QIP short-term course on 'Solid and Hazardous Waste Management', Indian Institute of Technology Kharagpur, Kharagpur, 19th Nov, 2010.
- Saltwater intrusion in coastal aquifers: Water Resources Day, The Institution of Engineers (India), Khargapur Local Chapter, Khargapur, 10th June, 2009.
- Prediction of earthquake from ground water table fluctuation: Training of faculty members of state resource institutes under the National Programme for Capacity Building of Engineers in Earthquake Risk Management (NPCBEERM), Indian Institute of Technology Kharagpur, Kharagpur, 26th June, 2009.

## PROJECTS

### Sponsored Research Projects

- "Physical And Mathematical Modeling Of Tidal Influence On Seawater Transport Through Porous Media Laboratory Scale With Implications To Field Scale" [Funding Agency: *SERB, INDIA*]
- "Efficiency Study of Damodar Left Bank Irrigation System and Strategies for Integrated Command Area Water Management" Jointly with Drs. D. Sen, S. J. Hossain [Funding Agency: *Ministry of Water Resources, INDIA*]
- "Mathematical And Physical Modeling Of Arsenic Transport Through Porous Media" [Funding Agency: *SRIC, IIT Kharagpur, INDIA*]
- Preparation of Ganga River Basin Management Plan, Joint Project of 7 IITs [Funding Agency: *National River Conservation Directorate, Ministry of Environment and Forest, INDIA*]
- "Smarter Water Resource Management, Disaster Mitigation & Diabetic Retinopathy (WDD)", Jointly with Drs. D. Sen, C. Chakraborty, D. Behera, M. Mandal, R. Maity, P. Mitra, S.K. Ghosh [Funding Agency: *IBM*]
- "Underwater Ballistic Response of Marine Grade Sandwich Composite Panels", Jointly with Drs. N. Mitra, S.J. Hossain, A. Shaw [Funding Agency: *Naval Research Board, INDIA*]

### Consultancy Projects

- "Study of Water Seepages From CRM Bara" Jointly with Dr. A. K. Gupta, Dr. S. P. Sharma and Dr. M. K. Tiwari [Funding Agency: *Tata Steel Limited, Procurement Division, Jamshedpur*]
- "Morphological Studies Of Rivers Mahanadi, Mahananda And Hooghly" Jointly with Dr. D. J. Sen and Dr. B. Sahoo [Funding Agency: *Central Water Commission, MoWR*]
- "Evaluation of Flood Management Scheme For Keliaghai - Kapaleswari - Baghai River Basin" Under Flood Management Programme, Government of India, Jointly with Dr. R. Maity [Funding Agency: *Government of WB*]
- "Storm Water Out Flow Drainage Plan And Subsurface Drainage Plan" Jointly with Dr. V. R. Desai [Funding Agency: *KEVENTER PROJECTS LTD*] (Completed)
- "Tokisud Flood Control Dike Vetting", Jointly with Drs. D. Roy, B. Maitra [Funding Agency: *GVK POWER (GOINDWAL SAHIB) LIMITED*] (Completed)
- "Performance Evaluation Study In Respect of Work Kapaleswari-Keliaghai-Baghai Drainage Basin Scheme (Phase-I, 2010-2011)" Under Flood Management Programme, Government of India, Jointly with Dr. R. Maity [Funding Agency: *Government of WB*] (Completed)
- "Performance Evaluation Study In Respect of Work Keliaghai-Kapaleswari-Baghai Drainage Basin Scheme (Phase-II, 2012-2013)" Under Flood Management Programme, Government of India, Jointly with Dr. R. Maity [Funding Agency: *Government of WB*] (Completed)
- "The Source Sustainability Study of Water (Subarnarekha River) at Intake Point", Jointly with Dr. S. Dey [Funding Agency: *Adhunik Power and Natural Resources Ltd. (APNRL)*] (Completed)

### **Curriculum Development Projects**

- National Programme on Technology Enhanced Learning (NPTEL), Development of a course on "Computational Hydraulics", Ministry of Human Resource Development (MHRD), Government of India (Ongoing)
- QEEE (Quality Enhancement in Engineering Education) Course (supported by the Ministry of Human Resources Development, Govt. of India) on "Open Channel Flow", March 7-9, 2017 (Completed)
- Pilot Phase of the National Mission Project on Pedagogic Development for the course "Hydraulics", National Mission Project on Education through ICT, Ministry of Human Resource Development (MHRD), Government of India, Jointly with Dr. V.R. Desai. (Completed)
- Pilot Phase of the National Mission Project on Pedagogic Development for the course "Water Resources Engineering", National Mission Project on Education through ICT, Ministry of Human Resource Development (MHRD), Government of India, Jointly with Dr. R. Maity. (Completed)
- National Programme on Technology Enhanced Learning (NPTEL), Development of a video course on "Ground Water Hydrology", Ministry of Human Resource Development (MHRD), Government of India, Jointly with Dr.V.R. Desai. (Completed)

### **SERVICES**

#### **Reviewer of Referred Journals:**

- Water Resources Research, AGU: Published by Wiley
- Environmental Science & Technology: Published by ACS Publications
- Journal of Water Resources Planning and Management: Published by ASCE
- Journal of Hydrologic Engineering: Published by ASCE
- Journal of Hydraulic Engineering: Published by ASCE
- Journal of Pipeline Systems - Engineering and Practice: Published by ASCE
- Hydrogeology Journal, IAHR: Published by Springer
- Water Resources Management: Published by Springer
- Water, Air, & Soil Pollution: Focus: Published by Springer
- KSCE Journal of Civil Engineering: Published by Springer
- Journal of Earth Systems Science: Published by Springer
- Environmental Earth Sciences: Published by Springer
- Geotechnical and Geological Engineering: Published by Springer
- Applied Water Science: Published by Springer
- Journal of The Institution of Engineers (India): Series A: Published by Springer
- Advances in Water Resources: Published by Elsevier
- Journal of Hydrology: Published by Elsevier
- Journal of Hydrodynamics: Published by Elsevier

- Journal of Contaminant Hydrology: Published by Elsevier
- International Journal of Sediment Research: Published by Elsevier
- Journal of Hydro-environment Research: Published by Elsevier
- Flow Measurement and Instrumentation: Published by Elsevier
- Journal of Hydraulic Research, IAHR: Published by Taylor and Francis
- Desalination and Water Treatment: Published by Taylor and Francis
- Hydrological Sciences Journal: Published by Taylor and Francis
- ISH Journal of Hydraulic Engineering: Published by Taylor and Francis
- Geocarto International: Published by Taylor and Francis
- Cogent Engineering: Published by Taylor and Francis
- Engineering Computations: Emerald Publishing
- Current Science: Published by Indian Academy of Sciences
- Sadhana: Published by Indian Academy of Sciences

**Reviewer of Project:**

- Science and Engineering Research Council (SERC), Department of Science and Technology, Government of India.

**Internal Committees:** Served in Campus Master Plan Committee

**Departmental Committees:** Served as

- Member, Departmental Academic Committee(PG & R), Civil Engineering
- Member, Departmental Academic Committee(UG), Civil Engineering
- Member, Departmental Faculty Recruitment Committee, Civil Engineering
- In-Charge, Training And Placement, Civil Engineering
- Member, Planning And Budget Committee, Civil Engineering
- In-Charge, Water Resources Engineering Laboratory, Civil Engineering

5TH APRIL 2017