Subhasish Dey, *FNA, FASc, FNASc, FNAE, JC Bose Fellow*
Professor, Indian Institute of Technology Kharagpur

Subhasish Dey is a *hydraulician* and *educator*. He is known for his research on the hydrodynamics throughout the world and acclaimed for his contributions to develop theories and solution methodologies of various problems on *applied hydrodynamics*, *turbulence*, and *sediment transport*. He was conferred with the Hans Albert Einstein Award from the American Society of Civil Engineers (ASCE) in 2022.

He is currently a *Professor* of the Department of Civil Engineering, Indian Institute of Technology (IIT) Kharagpur, where he teaches free surface flow, hydraulics of sediment transport and turbulent fluid flow in post-graduate level. He served as the *Head* of the Department of Civil Engineering during 2013–15 and held the position of *Distinguished Visiting Professor of Tsinghua University*, Tsinghua University, Beijing, China (2016–19), *Adjunct Professor* of Indian Statistical Institute Kolkata (2014–19) and *Brahmaputra Chair Professor*, IIT Kharagpur during 2009–14 and 2015.

He has offered courses on turbulent flow and sediment transport in different universities, such as the University of Hong Kong, Università di Pisa, Università della Calabria, Politecnico di Milano, University of Florence, University of Oulu, Instituto Superior Tecnico Lisbon, National Chung Hsing University etc. He has also coordinated several ISWT, GIAN short courses at IIT Kharagpur.

Presently, he is engaged in studying turbulence characteristics over smooth and rough boundaries and other turbulence related problems. His general areas of research interests encompass analytical hydrodynamics, submerged jet flows, offset jet flows, sediment transport, scour, free surface flow, coherent motion in turbulent flow, turbulent boundary-layer and time-space averaging flow characteristics over macro-rough walls, etc. He is an author of a textbook titled *Fluvial Hydrodynamics* published by Springer, Germany. He has published 214 research papers in refereed journals.

He is an *associate editor* of the *Journal of Geophysical Research – Earth Surface (AGU)*, *Journal of Hydraulic Engineering (ASCE)*, *Journal of Hydraulic Research (IAHR)*, *Sedimentology*, *Acta Geophysica*, *Journal of Hydro-Environment Research*, *International Journal of Sediment Research* and *Journal of Numerical Mathematics and Stochastics*. He is also an editorial board member of several journals including the *Proceedings A of the Royal Society of London: Mathematical, Physical and Engineering Sciences*.

He is a *Vice-President* of the Council of the *World Association for Sedimentation and Erosion Research* (*WASER*), Beijing (2019–22; 2022–25). He is also a *council member of IAHR* (2015–19), *member* of *IAHR Fluvial Hydraulics Committee* (2014–), a *past-council member* of the *WASER*, Beijing (2010–13) and a *Foreign Expert in China* (2016–18).

He is a *fellow* of *the Indian National Science Academy (FNA), Indian Academy of Sciences* (*FASc*), *the National Academy of Sciences India* (*FNASc*) and *Indian National Academy of Engineering* (*FNAE*). He has received the *JC Bose Fellowship* award in

2018.

BIOGRAPHICAL DATA

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Fields of Research Interest

Applied Hydrodynamics

Specific fields of research interest are as follows:

Analytical Hydrodynamics: Boundary layer, vortex flow, flow modeling
Turbulence: Coherent structure, bursting, turbulent flow measurements
Fluvial Hydraulics: Sediment transport and scour
Shallow fluid flows: Submerged wall jets, offset jets, wall transpiration

Educational Degrees

PhD	Department of Civil Engineering, Indian Institute of Technology Kharagpur, (PhD in Civil Engineering) 1992
	Thesis: Clear water scour around circular bridge piers: A model
MTech	Department of Civil Engineering, Indian Institute of Technology Kharagpur, (MTech in Hydraulic Engineering) 1984
BE	University of North Bengal, (BE in Civil Engineering) 1981

Present Position

Professor	Department of Civil Engineering, Indian Institute of Technology Kharagpur, West Bengal, India (2007–)

Previous Positions

Head	Department of Civil Engineering, Indian Institute of Technology Kharagpur, West Bengal, India (2013–15)
Brahmaputra Chair	Department of Civil Engineering, Indian Institute of Technology Kharagpur, West Bengal, India (2009–14 and April–September 2015)
Adjunct Professor	Physics & Applied Mathematics Unit, Indian Statistical Institute Kolkata (2014–19)
Associate Professor	Department of Civil Engineering, Indian Institute of Technology

	Kharagpur, West Bengal, India (2002–07)
Assistant Professor	Department of Civil Engineering, Indian Institute of Technology Kharagpur, West Bengal, India (1998–2002)
Senior Lecturer	Department of Applied Mechanics, National Institute of Technology Durgapur, West Bengal, India (1990–98)
Lecturer	Department of Applied Mechanics, National Institute of Technology Durgapur, West Bengal, India (1984–90)

Associate Editor of Journals

Journal of Geophysical Research – Earth Surface, American Geophysical Union (AGU), USA (2020–)
Journal of Hydraulic Engineering, American Society of Civil Engineers (ASCE), USA (2008–)
Journal of Hydraulic Research, International Association for Hydro-Environment Engineering and Research (IAHR), Spain (2013–)
Sedimentology, Blackwell Publishing (2008–)
Acta Geophysica, Polish Academy of Sciences, Springer (2010–)
Journal of Hydro-Environment Research, Elsevier Publishers (2007–)
International Journal of Sediment Research, Elsevier Publishers (2007–)
Journal of Numerical Mathematics and Stochastics, Euclidean Press (2009–)
KSCE Journal of Civil Engineering, Springer (2008–11)

Member of Editorial Board of Journals

Proceedings A of the Royal Society of London: Mathematical, Physical and Engineering Sciences, The Royal Society, London (2018–20)
Environmental Fluid Mechanics, Springer (2021–)
Journal of Hydraulics, Iranian Hydraulic Association (2021–)
Engineering Applications of Computational Fluid Mechanics, Taylor and Francis, UK (2006–)
International Review of Civil Engineering, Praise Worthy Prize, USA (2009–)
Flow Measurement and Instrumentation, Elsevier Publishers (2004–11)
Water Management Journal, Institution of Civil Engineers (London), UK (2004–08)

Guest Editor of Journals

Special Issue of Environmental Fluid Mechanics: *Hydrodynamic and Fluvial Instabilities*, Springer (2022)

Special Issue of Water: *Water-Worked Bedload: Hydrodynamic and Mass Transport*, IWA (2019)

List of Publications

Book (Total Number 2)

1. **Dey S** (2014): Fluvial hydrodynamics: Hydrodynamic and sediment transport phenomena. Springer-Verlag, Berlin
2. Rowinski P and **Dey S** (editors) (2019): Water: Water-Worked Bedload: Hydrodynamic and Mass Transport, MDPI, Basel, Switzerland

Chapter of Book (Total Number 10)

1. Sarkar S, Ali SZ and **Dey S** (2021): Turbulence in wall-wake flow downstream of an isolated dunal bedform. R Gaudio (ed), *Turbulence and Flow–Sediment Interactions in*

Open-Channel Flows, MDPI, Switzerland, 165–182

2. **Dey S** and Saraka S (2020): Turbulent length scales and Reynolds stress anisotropy in wall-wake flow downstream of an isolated dunal bedform. M B Kalinowska et al. (eds), *Recent Trends in Environmental Hydraulics*, Springer-Verlag, Berlin, 1–21
3. Padhi E, **Dey S**, Penna N and Gaudio R (2020): Hydrodynamics of water-worked and screeded gravel-bed flows. M B Kalinowska et al. (eds), *Recent Trends in Environmental Hydraulics*, Springer-Verlag, Berlin, 207–218
4. Saraka S and **Dey S** (2020): Turbulence in wall-wake flow downstream of an isolated dune. M B Kalinowska et al. (eds), *Recent Trends in Environmental Hydraulics*, Springer-Verlag, Berlin, 241–252
5. Padhi E, **Dey S**, Desai VR, Penna N and Gaudio R (2019): Water-worked gravel bed: state-of-the-art review. P Rowinski and S Dey (eds), *Water-Worked Bedload: Hydrodynamic and Mass Transport*, MDPI, Switzerland, 165–182
6. Khaple S, Hanmaiahgari PR, Gaudio R and **Dey S** (2018): Time variation of scour at downstream pier for two piers in tandem arrangement. M B Kalinowska et al. (eds), *Free Surface Flows and Transport Processes*, Springer-Verlag, Berlin, 235–243
7. Ferraro D and **Dey S** (2015): Principles of mechanics of bedforms. P Rowinski and A Radecki-Pawlik (eds), *Rivers - Physical, Fluvial and Environmental Processes*, Springer-Verlag, Berlin, 79–98
8. **Dey S**, Bose SK and Castro-Orgaz O (2012): Hydrodynamics of undular free surface flows. P Rowinski (ed), *Experimental and Computational Solutions of Hydraulic Problems*, Springer-Verlag, Berlin, 53–70
9. Gaudio R and **Dey S** (2012): Evidence of non-universality of von Kármán's κ. P Rowinski (ed), *Experimental and Computational Solutions of Hydraulic Problems*, Springer-Verlag, Berlin, 71–83
10. **Dey S** (2011): Entrainment threshold of loose boundary streams. P Rowinski (ed), *Experimental Methods in Hydraulic Research*, Springer-Verlag, Berlin, 29–48

Journal (Total Number 214)

1. Wang J, He G, **Dey S** and Fang H (2022): Fluid-structure interaction in a flexible vegetation canopy in an open channel. *Journal of Fluid Mechanics*, Cambridge University Press, UK (in press)
2. Wang J, He G, **Dey S** and Fang H (2022): Influence of submerged flexible vegetation on turbulence in an open-channel flow. *Journal of Fluid Mechanics*, Cambridge University Press, UK, 947(September), A31
3. Mahato R, **Dey S** and SK Ali (2022): Submarine channels formation driven by turbidity currents interacting with an erodible bed. *Proceedings A of the Royal Society*, London, UK, 478(July), 20220137
4. Ali SZ and **Dey S** (2022): Origin of the scaling laws of developing turbulent boundary layers. *Physics of Fluids*, American Institute of Physics (AIP), 34(7), 071402
5. Ali SZ and **Dey S** (2022): Discovery of the zeroth law of helicity spectrum in the pre-inertial range of wall turbulence. *Physics of Fluids*, American Institute of Physics (AIP), 34(7), 071401
6. D'Ippolito A, Calomino F, Penna N, **Dey S** and Gaudio R (2022): Simulation of accelerated subcritical flow profiles in an open channel with emergent rigid vegetation. *Applied Sciences*. MDPI, 12(14), 6960

7. Gamero P, Cantero-Chinchilla FN, Bergillos RJ, Castro-Orgaz O and **Dey S** (2022): Shallow-water lee-side waves at obstacles: Experimental characterization and turbulent non-hydrostatic modeling using weighted-averaged residual equations. *Environmental Modelling and Software*, Elsevier, 155(September), 105422

8. Mahato R, **Dey S** and SK Ali (2022): Planform evolution of a sinuous channel triggered by curvature and autogenic width oscillations due to generic grain transport. *Physics of Fluids*, American Institute of Physics (AIP), 34(4), 044110

9. **Dey S**, Mahato R and Ali SK (2022): Linear stability of sand waves sheared by a turbulent flow. *Environmental Fluid Mechanics*, Springer, 22(2–3), 429–446

10. Zhao C, Ouro P, Stoesser T, **Dey S** and Fang H (2022): Response of flow and saltating particle characteristics to bed roughness and particle spatial density. *Water Resources Research*, American Geophysical Union (AGU), 58(3), e2021WR030847

11. Rathore V, Penna N, **Dey S** and Gaudio R (2022): Response of open-channel flow to a sudden change from smooth to rough bed. *Environmental Fluid Mechanics*, Springer, 22(1), 87–121

12. Penna N, Padhi E, **Dey S** and Gaudio R (2022): Response of turbulence stresses and scaling behavior of high-order structure functions to a water-worked gravel-bed surface and its implication on sediment transport. *International Journal of Sediment Research*, Elsevier, 37(1), 1–13

13. **Dey S**, Rathore V, Penna N and Gaudio R (2021): Hydrodynamics of flow over a gradually varied bed roughness. *Physics of Fluids*, American Institute of Physics (AIP), 33(12), 125112

14. Mahato R, **Dey S** and Ali SZ (2021): Instability of a meandering channel with variable width and curvature: role of sediment suspension. *Physics of Fluids*, American Institute of Physics (AIP), 33(11), 111401

15. Roy Biswas T, **Dey S** and Sen DJ (2021): Undular hydraulic jumps: Critical analysis of 2D RANS-VOF simulations. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 147(11), 06021017

16. Ali SZ and **Dey S** (2021): Linear stability of dunes and antidunes. *Physics of Fluids*, American Institute of Physics (AIP), 33(9), 094109

17. Rathore V, **Dey S**, Penna N and Gaudio R (2021): Turbulent flow characteristics over an abrupt step change in bed roughness. *Physics of Fluids*, American Institute of Physics (AIP), 33(9), 095106

18. Ali SK, **Dey S** and Mahato R (2021): Mega riverbed-patterns: linear and weakly-nonlinear perspectives. *Proceedings A of the Royal Society, London*, UK, 477(August), 20210331

19. Roy Biswas T, **Dey S** and Sen DJ (2021): Modeling positive surge propagation in open channels using the Serre-Green-Naghdi equation. *Applied Mathematical Modelling*, Elsevier 97(September), 803–820

20. Penna N, Padhi E, **Dey S** and Gaudio R (2021): Statistical characterization of unworked and water-worked gravel-bed roughness structures. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 59(3), 420–436

21. Ali SZ and **Dey S** (2021): Interfacial instability of sand patterns induced by turbulent shear flow. *International Journal of Sediment Research*, Elsevier, 36(4), 449–456

22. Roy Biswas T, Bagam S, **Dey S** and Sen DJ (2021): Equilibrium approach for modeling erosional failure of granular dams. *Physics of Fluids*, American Institute of Physics (AIP), 33(4), 043306
23. Mahato R, Ali SK and **Dey S** (2021): Hydrodynamic instability of free river bars. *Physics of Fluids*, American Institute of Physics (AIP), 33(4), 045105
24. Ali SZ and **Dey S** (2021): Instability of large-scale riverbed patterns. *Physics of Fluids*, American Institute of Physics (AIP), 33(1), 015109
25. Ali SZ and **Dey S** (2020): The law of the wall: A new perspective. *Physics of Fluids*, American Institute of Physics (AIP), 32(12), 121401
26. **Dey S,** Paul P, Ali SZ and Padhi E (2020): Reynolds stress anisotropy in flow over two-dimensional rigid dunes. *Proceedings A of the Royal Society*, *London*, UK, 476(October), 20200638
27. Mahato RK and **Dey S** (2020): Hydraulics of seepage from trapezoidal channels. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 146(12), 04020083
28. Sarkar S and **Dey S** (2020): Self-preserving characteristics in wall-wake flow downstream of an isolated bedform. *Environmental Fluid Mechanics*, Springer, 20(4), 1119–1139
29. **Dey S,** Paul P and Padhi E (2020): Conditional spatially averaged turbulence and dispersion characteristics in flow over two-dimensional dunes. *Physics of Fluids*, American Institute of Physics (AIP), 32(6), 065106
30. **Dey S** and Ali SZ (2020): Fluvial instabilities. *Physics of Fluids*, American Institute of Physics (AIP), 32(6), 061301
31. Penna N, Padhi E, **Dey S** and Gaudio R (2020): Structure functions and invariants of the anisotropic Reynolds stress tensor in turbulent flows on water-worked gravel beds. *Physics of Fluids*, American Institute of Physics (AIP), 32(5), 055106
32. **Dey S**, Ali SZ and Padhi E (2020): Hydrodynamic lift on sediment particles at entrainment: present status and its prospect. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 146(6), 03120001
33. Zhao C, Fang H, Liu Y, **Dey S** and He G (2020): Impact of particle shape on saltating mode of bedload transport sheared by turbulent flow. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 146(5), 04020034
34. **Dey S,** Paul P, Fang H and Padhi E (2020): Hydrodynamics of flow over two-dimensional dunes. *Physics of Fluids*, American Institute of Physics (AIP), 32(2), 025106
35. Padhi E, **Dey S**, Penna N and Gaudio R (2020): Conditional turbulence characteristics in water-worked and screeded gravel-bed flows. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 146(2), 04019052
36. **Dey S**, Ali SZ and Padhi E (2019): Bedload transport from analytical and turbulence phenomenological perspectives. *International Journal of Sediment Research*, Elsevier, 34(6), 509–530
37. Gazi AH, Afzal MS and **Dey S** (2019): Scour around piers under waves: current status of research and its future prospect. *Water*, MDPI, 11(11), 2212
38. Padhi E, Ali SZ and **Dey S** (2019): Mechanics of bed particle saltation in turbulent wall-shear flow. *Proceedings A of the Royal Society*, *London*, UK, 475(October), 20190318
39. Sarkar S, Ali SZ and **Dey S** (2019): Turbulence in wall-wake flow downstream of an isolated dunal bedform. *Water*, MDPI, 11(10), 1975
40. **Dey S**, Ali SZ and Padhi E (2019): Terminal fall velocity: The legacy of Stokes from the perspective of fluvial hydraulics. *Proceedings A of the Royal Society*, *London*, UK**,** 475(August), 20190277

41. **Dey S** and Ali SZ (2019): Bed sediment entrainment by streamflow: State of the science. *Sedimentology*, Wiley, 66(5), 1449–1485
42. Ali SZ and **Dey S** (2019): Hydrodynamics of a weakly curved channel. *Physics of Fluids*, American Institute of Physics (AIP), 31(5), 055110
43. Cantero-Chinchilla FN, Castro-Orgaz O and **Dey S** (2019): Prediction of overtopping dike failure: Sediment transport and dynamic granular bed deformation model. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 145(6), 04019021
44. Padhi E, Penna N, **Dey S** and Gaudio R (2019): Near-bed turbulence structures in water-worked and screeded gravel-bed flows. *Physics of Fluids*, American Institute of Physics (AIP), 31(4), 045107
45. Padhi E, **Dey S**, Desai VR, Penna N and Gaudio R (2019): Water-worked gravel bed: state-of-the-art review. *Water*, MDPI, 11(4), 649
46. Ali SZ and **Dey S** (2019): Bed particle saltation in turbulent wall-shear flow: A review. *Proceedings A of the Royal Society*, *London*, UK, 475(March), 20180824
47. **Dey S**, Ravi Kishore G, Castro-Orgaz O and Ali SZ (2019): Turbulent length scales and anisotropy in submerged turbulent plane offset jets. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 145(2), 04018085
48. Padhi E, Penna N, **Dey S** and Gaudio R (2018): Spatially averaged dissipation rate in flows over water-worked and screeded gravel beds**.** *Physics of Fluids*, American Institute of Physics (AIP), 30(12), 125106
49. Cheng W, Fang H, Lai H, Huang L and **Dey S** (2018): Effects of biofilm on turbulence characteristics and the transport of fine sediment. *Journal of Soils and Sediments*, Springer, 18(October), 3055–3069
50. Padhi E, Penna N, **Dey S** and Gaudio R (2018): Hydrodynamics of water-worked and screeded gravel beds: A comparative study. *Physics of Fluids*, American Institute of Physics (AIP), 30(8), 085105
51. Cantero-Chinchilla FN, Castro-Orgaz O, Schmocker L, Hager WH and **Dey S** (2018): Depth-averaged modelling of granular dike overtopping. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 56(4), 537–550
52. **Dey S**, Lodh R and Sarkar S (2018): Turbulence characteristics in wall-wake flows downstream of wall-mounted and near-wall horizontal cylinders. *Environmental Fluid Mechanics*, Springer, 18(4), 891–921
53. Bagam S, Sen DJ and **Dey S** (2018): Moraine dam breach and glacial lake outburst flood generation by physical and numerical models. *Journal of Hydrology*, Elsevier, 563(August), 694–710
54. Fang H, Han X, He G and **Dey S** (2018): Influence of permeable beds on hydraulically macro-rough flow. *Journal of Fluid Mechanics*, Cambridge University Press, UK, 847(July), 552–590
55. Langhi M, Hosoda T and **Dey S** (2018): Analytical solution of k-ε model for nonuniform flows. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 144(7), 04018033
56. **Dey S** and Ali SZ (2018): Advances in modeling of bed particle entrainment sheared by turbulent flow. *Physics of Fluids*, American Institute of Physics (AIP), 30(6), 061301
57. **Dey S**, Ali SZ and Padhi E (2018): Advances in analytical modeling of suspended sediment transport. *Journal of Hydro-Environment Research*, Elsevier, 20(June), 110–126
58. **Dey S**, Swargiary D, Sarkar S, Fang H and Gaudio R (2018): Turbulence features in a wall-wake flow downstream of a wall-mounted vertical cylinder. *European Journal of Mechanics / B Fluids*, Elsevier, 69(May-June), 46–61

59. **Dey S**, Ravi Kishore G, Castro-Orgaz O and Ali SZ (2018): Reynolds stress in submerged turbulent plane offset jets: Mathematical model. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 144(6), 06018001
60. Tan G, Fang H, **Dey S** and Wu W (2018): Rui-Jin Zhang's research on sediment transport. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 144(6), 02518002
61. **Dey S**, Swargiary D, Sarkar S, Fang H and Gaudio R (2018): Self-similarity in turbulent wall-wake flow downstream of a wall-mounted vertical cylinder. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 144(6), 04018023
62. Ali SZ and **Dey S** (2018): Impact of phenomenological theory of turbulence on pragmatic approach to fluvial hydraulics. *Physics of Fluids*, American Institute of Physics (AIP), 30(4), 045105
63. Bose SK and **Dey S** (2018): Far-wake flows downstream of cylinders: a novel generalized similarity method. *European Journal of Mechanics / B Fluids*, Elsevier, 67(January-February), 65–69
64. Ali SZ and **Dey S** (2017): Hydrodynamic instability of meandering channels. *Physics of Fluids*, American Institute of Physics (AIP), 29(12), 125107
65. Khaple S, Hanmaiahgari PR, Gaudio R and **Dey S** (2017): Splitter plate as a flow-altering pier scour countermeasure. *Acta Geophysica*, Springer, 65(5), 957–975
66. **Dey S** and Ali SZ (2017): Origin of the onset of meandering of a straight river. *Proceedings A of the Royal Society*, *London*, UK, 473(August), 20170376
67. **Dey S**, Ravi Kishore G, Castro-Orgaz O and Ali SZ (2017): Hydrodynamics of submerged turbulent plane offset jets. *Physics of Fluids*, American Institute of Physics (AIP), 29(6), 065112
68. **Dey S** and Ali SZ (2017): Stochastic mechanics of loose boundary particle transport in turbulent flow. *Physics of Fluids*, American Institute of Physics (AIP), 29(5), 055103
69. **Dey S** and Ali SZ (2017): Mechanics of sediment transport: Particle scale of entrainment to continuum scale of bedload flux. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 143(11), 04017127
70. Papanicolaou AN, Wilson CG, Sutarto TE, Bertrand F, Rinaldi M, **Dey S** and Langendoen E (2017): Understanding mass fluvial erosion along a bank profile: using PEEP technology for quantifying retreat lengths and identifying event timing. *Earth Surface Processes and Landforms*, Wiley, 42(11), 1717–1732
71. Fang H, Cheng W, Fazeli M and **Dey S** (2017): Bedforms and flow resistance of cohesive beds with and without biofilm coating. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 143(8), 06017010
72. Khaple S, Hanmaiahgari PR, Gaudio R and **Dey S** (2017): Interference of an upstream pier on local scour at downstream piers. *Acta Geophysica*, Springer, 65(1), 29–46
73. Ali SZ and **Dey S** (2017): Origin of the scaling laws of sediment transport. *Proceedings A of the Royal Society*, *London*, UK, 473(January), 20160785
74. Ali SZ and **Dey S** (2016): Mechanics of advection of suspended particles in turbulent flow. *Proceedings A of the Royal Society*, *London*, UK, 472(November), 20160749
75. Ali SZ and **Dey S** (2016): Scaling laws of rough turbulent flows from turbulence phenomenology: An overview and a new approach. *Proceedings of Indian National Science Academy*, 82(2, supplementary issue), 341–348
76. Cantero-Chinchilla FN, Castro-Orgaz O, **Dey S** and Ayuso JL (2016): Nonhydrostatic dam break flows. I: Physical equations and numerical schemes. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(10), 04016068

77. Cantero-Chinchilla FN, Castro-Orgaz O, **Dey S** and Ayuso JL (2016): Nonhydrostatic dam break flows. II: One-dimensional depth-averaged modeling for movable bed flows. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(10), 04016069
78. Fang H, Fazeli M, Cheng W and **Dey S** (2016): Transport of biofilm-coated sediment particles. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 54(6), 631–645
79. Sarkar S, Papanicolaou AN and **Dey S** (2016): Turbulence in a gravel-bed stream with an array of large gravel obstacles. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(11), 04016052
80. Cantero-Chinchilla FN, Castro-Orgaz O and **Dey S** (2016): Distribution of suspended sediment concentration in wide sediment-laden streams: a novel power-law theory. *Sedimentology*, Wiley, 63(6), 1620–1633
81. Ali SZ and **Dey S** (2016): Hydrodynamics of sediment threshold. *Physics of Fluids*, American Institute of Physics (AIP), 28(7), 075103
82. Shafai-Bejestan M, Nabavi SMR and **Dey S** (2016): Scour downstream of grade control structures under the influence of upward seepage. *Acta Geophysica*, Springer, 64(3), 694–710
83. Ferraro D, Servidio S, Carbone V, **Dey S** and Gaudio R (2016): Turbulence laws in natural bed flows. *Journal of Fluid Mechanics*, Cambridge University Press, UK, 798(July), 540–571
84. Ali SZ and **Dey S** (2016): Theory of turbulent flow over a wavy boundary. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(6), 04016006
85. Ali SZ and **Dey S** (2016): Entry flow in curved pipes: Turbulent boundary layer approach. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 54(1), 90–101
86. Solari L and **Dey S** (2016): Marchi's research on supercritical flow in tight bends and backwater effects. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(2), 02515004
87. Bose SK and **Dey S** (2016): Circular far-wake flow behind a sphere: solutions to the second order. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 142(1), 06015005
88. Cantero-Chinchilla FN, **Dey S**, Castro-Orgaz O and Ali SZ (2015): Hydrodynamic analysis of fully developed turbidity currents over plane beds based on self-preserving velocity and concentration distributions. *Journal of Geophysical Research, Earth Surface*, American Geophysical Union (AGU), 120(10), 2176–2199
89. Bolhassani R, Afzalimehr H and **Dey S** (2015): Effects of relative submergence and bed slope on sediment incipient motion under decelerating flows. *Journal of Hydrology and Hydromechanics*, De Gruyter, 63(4), 295–302
90. Sarkar S and **Dey S** (2015): Turbulent length scales and anisotropy downstream of a wall mounted sphere. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 53(5), 649–658
91. Cantero-Chinchilla FN, Castro-Orgaz O, Garcia A, Ayuso JL and **Dey S** (2015): Free surface profiles in river flows: Can standard energy-based gradually-varied flow computations be pursued? *Journal of Hydrology*, Elsevier, 529(Part 3), 1644–1656
92. Sarkar S and **Dey S** (2015): Turbulence anisotropy in flow at an entrainment threshold of sediment. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 141(7), 06015007
93. Castro-Orgaz O, Hager WH and **Dey S** (2015): Depth-averaged model for undular hydraulic jump. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 53(3), 351–363
94. Maji S, Hanmaiahgari PR and **Dey S** (2014): Experimental studies of local scour in the pressurized OCF below a wooden log across the flow. *Sadhana, Academy*

Proceedings in Engineering Sciences, Indian Academy of Sciences, 39(October), 1245–1257

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30. **Dey S** (1994): Bed shear in evolving scour at a circular pier. *Proceedings of Ninth Congress of Asia and Pacific Division of International Association for Hydraulic Research*, Singapore, Vol. 2, 360–367
31. **Dey S**, Bose SK and Sastry GLN (1992): Clear water scour at circular piers, part I: flow model. *Proceedings of Eighth Congress of Asia and Pacific Division of International Association for Hydraulic Research*, Pune, Vol. 3, 69–80

32. **Dey S**, Bose SK and Sastry GLN (1992): Clear water scour at circular piers, part II: design formula. *Proceedings of Eighth Congress of Asia and Pacific Division of International Association for Hydraulic Research*, Pune, Vol. 3, 81–92

PhD Theses Guided

PhD Thesis (Completed 20)

1. Gravel bed hydrodynamics: Malothu Aishwarya (ongoing)
2. Instabilities in fluvial systems: Rajesh K Mahato (ongoing)
3. Hydrodynamics of two-dimensional rigid subaqueous dunes: Prianka Paul (submitted) (March 2022)
4. Effects of change in bed roughness on flow characteristics: Vijit Rathore (2022)
5. Precipitation, channel dynamics, land use change and hydrology studies for the data-scarce Teesta River basin of the Indian Himalayas: Akram Ahmed (2020)
6. Turbulence characteristics in water-worked and screeded gravel-bed streams: Ellora Padhi (2020)
7. New look on hydrodynamics of sediment motion and fluvial instabilities: Sk Zeeshan Ali (2019)
8. Moraine dammed glacial lakes monitoring in the Himalayas and analysis of their outburst mechanism: Sazeda Begam (2019)
9. Flow modelling of straight and meandering compound channels: Saine Sikta Dash (2018)
10. Effects of an upstream bridge pier on scour at downstream bridge piers and scour countermeasure: Shivakumar Khaple (2017)
11. Turbulent wall-wake flow downstream of a wall-mounted vertical circular cylinder: Debshri Swargiary (2017)
12. Wall-wake flows downstream of wall-mounted and near-wall horizontal cylinders: Rajashree Lodh (2017)
13. Hydrodynamics of submerged turbulent plane offset jets: Galla Ravi Kishore (2017)
14. Hydrodynamics of mobile sand-bed and immobile gravel-bed: Ratul Das (2011)
15. Turbulence in loose boundary streams: Sankar Sarkar (2010)
16. Effect of exceptional flow characteristics on river diversion barrages and performance improvement using depressed secondary aprons: Kapileswar Mishra (2009)
17. Turbulence in submerged wall-jets and open-channel flows subjected to injection and suction from wall: Tushar Kumar Nath (2009)
18. Local scour at submerged pipelines and their supports: Navneet Pratap Singh (2008)
19. Characteristics of flow over gravel-beds and scour within contractions and at piers: Rajkumar Raikar (2006)
20. Scour downstream of an apron and characteristics of submerged horizontal jet over rough and sudden changes from smooth to rough beds: Arindam Sarkar (2005)
21. Clear water scour at bridge abutments: Abdul Karim Barbhuiya (2003)
22. Sediment threshold and pick-up on streamwise sloping beds: Koustuv Debnath (2002)

Reviewer of Journals

Proceedings A of the Royal Society of London: Mathematical, Physical and Engineering Sciences, The Royal Society of London

Journal of Fluid Mechanics, Cambridge University Press, UK

Physics of Fluids, American Institute of Physics (AIP), USA
Journal of Hydraulic Engineering, American Society of Civil Engineers (ASCE), USA
Journal of Engineering Mechanics, American Society of Civil Engineers (ASCE), USA
Journal of Irrigation and Drainage Engineering, American Society of Civil Engineers (ASCE), USA
Journal of Waterway, Port, Coastal and Ocean Engineering, American Society of Civil Engineers (ASCE), USA
Journal of Hydrologic Engineering, American Society of Civil Engineers (ASCE), USA
Journal of Geophysical Research, Earth Surface, American Geophysical Research, USA
Water Resources Research, American Geophysical Research, USA
Journal of Hydraulic Research, International Association for Hydraulic Research, Spain
European Journal of Mechanics / B Fluids, Elsevier Publishers
Water Management Journal, Institution of Civil Engineers (London), UK
Canadian Journal of Civil Engineering, National Research Council, Canada
Journal of Turbulence, Taylor and Francis
Sedimentology, Blackwell Publishing
Acta Geophysica, Polish Academy of Sciences, Springer
Experiments in Fluids, Springer
Irrigation Science, Springer
Environmental Fluid Mechanics, Springer
Central European Journal of Physics, Springer
KSCE Journal of Civil Engineering, Springer
Fluid Dynamics Research, Elsevier Publishers
Applied Mathematical Modelling, Elsevier Publishers
Advances in Water Resources, Elsevier Publishers
Flow Measurement and Instrumentation, Elsevier Publishers
Journal of Hydro-Environment Research, Elsevier Publishers
Engineering Structures, Elsevier Publishers
International Journal of Sediment Research, Elsevier Publishers
Computers and Fluids, Elsevier Publishers
Computers and Geosciences, Elsevier Publishers
Journal of Ocean Engineering and Science, Elsevier Publishers
Ocean Engineering, Elsevier Publishers
Coastal Engineering, Elsevier Publishers
Computers and Fluids, Elsevier Publishers
Hydrological Processes, Wiley, UK
Earth Surface Processes and Landforms, Wiley, UK
Hydrology Research, IWA Publishing, UK
International Journal of River Basin Management, UK
Australian Journal of Water Resources, Engineers Australia, Australia
Engineering Applications of Computational Fluid Mechanics, Hong Kong
International Journal of Applied Mathematics and Mechanics, Hong Kong
Water Science and Engineering, China
Asian Journal of Science and Technology for Development, Thailand
Sadhana, Academy Proceedings in Engineering Sciences, Indian Academy of Sciences, India
Indian Journal of Engineering and Material Sciences, Council of Scientific and Industrial Research, India
Journal of Institution of Engineers, Institution of Engineers, India

Reviewer of Projects

National Science Center, Poland
Fondazione Cariparo (*Cariparo foundation*), Italy

Research Grant Council, Hong Kong
Department of Science and Technology, Government of India
Indo-US Science and Technology Forum, New Delhi, India
Israel Science Foundation, Israel
Mid-America Transportation Center (MATC) research program, USA

Short-Term Course Offered

In Abroad

2013 (One-day): *Turbulent flow, sediment transport and scour*, 35th IAHR World Congress, Chengdu, China
2012 (two-day): *Turbulent flow, sediment transport and scour*, Department of Soil and Water Conservation, National Chung Hsing University, Taiwan
2009 (one-day): *Turbulent flow, sediment transport and scour*, Department of Civil Engineering and Architecture, Instituto Superior Tecnico, Lisbon, Portugal
2009 (two-day): *Turbulent flow, sediment transport and scour*, Dipartimento di Ingegneria Civile, Università della Calabria, Italy
2008 (two-day): *Turbulent flow, sediment transport and scour*, Dipartimento di Ingegneria Civile, Università della Calabria, Italy
2008 (two-day): *Sediment transport and scour*, Department of Civil and Environmental Engineerring, University of Florence, Italy
2008 (two-day): *Sediment transport and scour*, Department of Process and Environmental Engineerring, University of Oulu, Finland
2007 (two-day): *Turbulent flow, sediment transport and scour*, Dipartimento di Ingegneria Civile, Università della Calabria, Italy
2007 (one-day): *Sediment transport and scour*, Dipartimento IIAR, Politecnico di Milano, Milan, Italy
2006 (three-day): *Sediment transport and scour*, Dipartimento di Ingegneria Civile, Università della Calabria, Italy
2006 (two-day): *Sediment transport and scour*, Dipartimento di Ingegneria Civile, Università di Pisa, Italy
2006 (two-day): *Sediment transport and scour*, Department of Civil Engineering, The University of Hong Kong, Hong Kong

In India

2016 (two-week, GIAN): *Advances in hydraulic modelling*, Department of Civil Engineering, Indian Institute of Technology Kharagpur
2015 (two-week, GIAN): *Hydrodynamics of riverbed erosion and scour at structures*, Department of Civil Engineering, Indian Institute of Technology Kharagpur
2014 (two-week, ISWT): *Modelling in fluvial processes*, Department of Civil Engineering, Indian Institute of Technology Kharagpur
2005 (one-week, CEP): *Erosion and sedimentation of riverbeds*, Department of Civil Engineering, Indian Institute of Technology Kharagpur

Award

Hans Albert Einstein Award, American Society of Civil Engineers (ASCE), 2022
JC Bose Fellow, 2018
Fellow of Indian National Science Academy (FNA), 2018
Fellow of Indian Academy of Sciences (FASc), 2012
Fellow of the National Academy of Sciences India (FNASc), 2012
Fellow of Indian National Academy of Engineering (FNAE) 2008
Fellow of West Bengal Academy of Science & Technology (FWAScT), 2021

Brahmaputra Chair Professor for Water Resources, 2009–14
International Talent Exchange Program "Fluvial Eco-Hydraulic" 111 Plan, Tsinghua University, China, 2018–22
Distinguished Visiting Professor of Tsinghua University, Tsinghua University, China, 2016–18
Foreign Expert in China, Tsinghua University, China, 2016–18
Adjunct Professor, Physics & Applied Mathematics Unit, Indian Statistical Institute Kolkata, 2014–19
The Royal Society of London Fellowship for Incoming Short Visit, University of Bradford, UK, 2007
Obermann Interdisciplinary Research Grant, The University of Iowa, USA, 2006
Indian National Science Academy – Chinese Academy of Sciences Exchange Programme Grant, 2006
Deutscher Akademischer Austauschdients (DAAD) Fellowship, Germany, 2003
Deutscher Akademischer Austauschdients (DAAD) Fellowship, Germany, 2000

Recognition

Vice President

World Association for Sedimentation and Erosion Research, Beijing (2019–22)

Council Member

International Association for Hydro-Environment Engineering and Research (IAHR) (2015–19)
World Association for Sedimentation and Erosion Research, Beijing (2010–13)

Member

IAHR Fluvial Hydraulics Committee (2014–)

Research Experience

Technical University of Denmark, Denmark (2009): Worked on sediment transport in Coastal and River Engineering Section, Department of Mechanical Engineering, Technical University of Denmark, Denmark
University of Bradford, UK (2007): Worked on sediment transport in the School of Engineering, Design and Technology, University of Bradford, UK
University of Iowa, USA (2006): Worked on bank stability in Obermann Center and Iowa Institute of Hydraulic Research, The University of Iowa, USA
National Chung Hsing University, Taiwan (2005): Worked on horseshoe vortex in Department of Civil Engineering, National Chung Hsing University, Taiwan
Technical University of Denmark, Denmark (2004): Worked on sediment transport in Coastal and River Engineering Section, Department of Mechanical Engineering, Technical University of Denmark, Denmark
Technische Universität Darmstadt, Germany (2003): Worked on sediment threshold under upward seepage in Institut für Wasserbau und Wasserwirtschaft, Technische Universität Darmstadt, Germany
The University of Adelaide, Australia (2001): Worked on Reynolds stress and bed shear in nonuniform-unsteady open channel flow in Department of Civil and Environmental Engineering, The University of Adelaide, Australia
Universität Stuttgart, Germany (2000): Worked on scour downstream of an apron in Institut für Wasserbau, Universität Stuttgart, Germany
Indian Institute of Technology Kharagpur (1998–): As a faculty in the Department of Civil Engineering, working on pier scour, abutment scour, scour downstream apron, scour

below pipeline, sediment transport and open channel hydraulics

National Institute of Technology Durgapur (1984–89 and 1991–98): As a faculty in the Department of Applied Mechanics, worked on the various field of hydraulics

Indian Institute of Technology Kharagpur (1989–91): Worked as a Doctoral Research Scholar in the Department of Civil Engineering, Indian Institute of Technology Kharagpur

Indian Institute of Technology Kharagpur (1983–84): Worked as a Post-graduate Scholar in the Department of Civil Engineering, Indian Institute of Technology Kharagpur

Overseas Activity

Paper presentation, 39th IAHR World Congress, Granada, Spain (June 2022)

Visiting Professor, Dipartimento di Ingegneria Civile, Università della Calabria, Italy (June 2022)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (December 2019)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (June–July 2019)

Visiting Professor, Department of Soil and Water Conservation, National Chung Hsing University, Taiwan (2019)

Invited Lecture, Thirty-eight International School of Hydraulics, Poland (2019)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (December 2018)

Chairman of Opening Ceremony, River Flow 2018, Lyon, France (2018)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (June–July 2018)

Meeting of Editorial Board of International Journal of Sediment Research, Beijing, China (2017)

Chair of Kynotes, 37th IAHR World Congress, Kuala Lumpur, Malaysia (2017)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (2017)

Keynote Speaker, *Eighth International Conference on Scour and Erosion (ICSE-2016)*, Oxford, UK (2016)

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (2016)

Visiting Professor, Hydrotech Research Institute, National Taiwan University, Taiwan (2015)

Visiting Professor (funded by the National Research Science Council, Taiwan), Department of Soil and Water Conservation, National Chung Hsing University, Taiwan (2015)

Chair of a Session, 35th IAHR World Congress, Chingdu, China (2013)

Visiting Professor, Dipartimento di Ingegneria Civile, Università della Calabria, Italy (2013)

Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (2013)

Lecture Delivered and Field Visit to South Island, The University of Auckland, New Zealand (2012)

Visiting Professor, Hydrotech Research Institute, National Taiwan University, Taiwan (2012)

Visiting Professor (funded by the National Research Science Council, Taiwan), Department of Soil and Water Conservation, National Chung Hsing University, Taiwan (2012)

Invited Lecture, Thirty-first International School of Hydraulics, Poland (2012)

Invited Lecture in RCEM2011, Tsinghua University, Beijing, China (2011)

Visiting Professor, DHI-NTU Centre, Nanyang Technological University, Singapore (2011)

Visiting Professor, Dipartimento di Difesa del Suolo "V. Marone", Università della Calabria, Italy (2011)

Keynote Speaker, Thirtieth International School of Hydraulics, Poland (2010)
Visiting Scientist, Laboratoire Central des Ponts et Chaussées, IFSTTAR - Centre de Nantes, France (2010)
Visiting Professor, Hydrotech Research Institute, National Taiwan University, Taiwan (2010)
Visiting Professor, Department of Civil Engineering, National Chung Hsing University, Taiwan (2010)
Visiting Professor, Department of Civil Engineering and Architecture, Instituto Superior Tecnico, Lisbon, Portugal (2009)
Visiting Professor, Dipartimento di Difesa del Suolo "V. Marone", Università della Calabria, Italy (2009)
Visiting Professor, Coastal and River Engineering Section, Department of Mechanical Engineering, Technical University of Denmark, Denmark (2009)
Visiting Professor, Dipartimento di Difesa del Suolo "V. Marone", Università della Calabria, Italy (2008)
ICHE2008 paper presentation, Department of Civil Engineerring, Nagoya University, Japan (2008)
Visiting Professor, Department of Civil and Environmental Engineerring, University of Florence, Italy (2008)
Visiting Professor, Department of Process and Environmental Engineerring, University of Oulu, Finland (2008)
Visiting Professor, Dipartimento di Difesa del Suolo "V. Marone", Università della Calabria, Italy (2007)
Visiting Professor, Dipartimento IIAR, Politecnico di Milano, Milan, Italy (2007)
Visiting Professor, School of Engineering, Design and Technology, University of Bradford, UK (2007)
Lecture Delivered, Department of Civil Engineering, University of Glasgow, UK (2007)
Visiting Professor, Department of Geography, University of Hull, UK (2007)
IIT Nominated Professor for India-Australia Workshop on Water Resources Engineering, Department of Civil and Environmental Engineering, The University of Adelaide, Australia (2007)
Visiting Professor, Dipartimento di Difesa del Suolo "V. Marone", Università della Calabria, Italy (2006)
Visiting Professor, Dipartimento di Ingegneria Civile, Università di Pisa, Italy (2006)
Visiting Scholar, Iowa Institute of Hydraulic Research, The University of Iowa, USA (2006)
Visiting Professor, Institute of Mechanics, Chinese Academy of Science, Beijing, China (2006)
Lecture Delivered, Department of Hydropower and Hydraulic Engineering, China Institute of Water Resources and Hydropower Research, Beijing, China (2006)
Lecture Delivered, Department of Hydropower and Hydraulic Engineering, Tsinghua University, Beijing, China (2006)
Visiting Professor, Department of Civil Engineering, The University of Hong Kong, Hong Kong (2006)
Visiting Professor, Department of Hydraulic and Ocean Engineering, National Cheng Kung University, Taiwan (2005)
Visiting Professor, Department of Civil Engineering, National Chung Hsing University, Taiwan (2005)
Chair of a Session, Second International Conference on Scour and Erosion (ICSE-2), Singapore (2004)
Visiting Professor, Coastal and River Engineering Section, Department of Mechanical Engineering, Technical University of Denmark, Denmark (2004)
Visiting Professor, Institut für Wasserbau und Wasserwirtschaft, Technische Universität Darmstadt, Germany (2003)

Visiting Professor, Department of Civil and Environmental Engineering, The University of Adelaide, Australia (2001)

Lecture Delivered, Institut für Hydromechanik, Universität Karlsruhe, Germany (2000)

Visiting Professor, Institut für Wasserbau, Universität Stuttgart, Germany (2000)

International Collaborative Research Program

Professor Roberto Gaudio, Dipartimento di Ingegneria Civile, Università della Calabria, Italy (2006–). Topic: Sediment Transport

Professor Oscar Castro-Orgaz, Instituto de Agricultura Sostenible, Consejo Superior de Investigaciones Cientificas, Spain (2007–). Topic: Hydraulics

Professor Hongwei Fang, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (2011–). Topic: Turbulence and Sediment Transport

Professor Su-Chin Chen, Department of Soil and Water Conservation, National Chung Hsing University, Taiwan (2012–). Topic: Hydraulics

Prof. Dr.-Ing. Oscar Link, Departamento de Ingeniería Civil, Universidad de Concepción, Chile (2011–15). Topic: Turbulence and Sediment Transport

Professor Thanos Papanicolaou, Iowa Institute of Hydraulic Research, The University of Iowa, USA (2006–). Topic: Sediment Transport

Professor Chang Lin, Department of Civil Engineering, National Chung Hsing University, Taichung, Taiwan (2005–10). Topic: Hydrodynamics

Professor Martin F. Lambert, Department of Civil and Environmental Engineering, The University of Adelaide, Australia (2001–10). Topic: Open channel hydraulics

Professor Luca Solari, Department of Civil and Environmental Engineering, University of Florence, Italy (2008–18). Topic: Sediment Transport

Professor Simon Tait, School of Engineering, Design and Technology, University of Bradford, UK (2007–12). Topic: Sediment Transport

Professor Francesco Ballio, Dipartimento IIAR, Politecnico di Milano, Milan, Italy (2007–11). Topic: Scour

Professor Björn Klöve, Department of Process and Environmental Engineerring, University of Oulu, Finland (2008). Topic: Environmental Hydraulics

Professor Hossein Afzalimehr, Department of Water Engineering, Isfahan University of Technology, Iran (2005–15). Topic: Fluvial hydraulics

Professor Jorgen Fredsoe and Professor B Mutlu Sumer, Coastal and River Engineering Section, Department of Mechanical Engineering, Technical University of Denmark, Denmark (2004–13). Topics: Coastal and fluvial hydraulics

Professor Nian-Sheng Cheng, School of Civil and Environmental Engineering, Nanyang Technological University, Nanyang Avenue, Singapore (2003–06). Topic: Open channel hydraulics

Professor Ulrich C E Zanke, Institut für Wasserbau und Wasserwirtschaft, Technische Universität Darmstadt, Germany (2003–05). Topics: Fluvial hydraulics

Professor Takashi Hosoda, Department of Civil Engineering, Kyoto University, Japan (2002–18). Topics: Fluvial hydraulics, Open channel hydraulics

Professor Bernhard Westrich, Institut für Wasserbau, Universität Stuttgart, Germany (2000). Topics: Fluvial hydraulics

Projects

Stability of Rajghat high embankment and Keleghai bridge foundation design measures (sponsored by South Eastern Railway, Kharagpur) (2020–21, duration 12 months)

Scour potential of soils and gneissic bedrock at Sambalpur Rourkela 4-laning bridge sites (sponsored by Larsen and Toubro Limited) (2015–16, duration 12 months)

Scour at bridge pier: An experimental observation (sponsored by Kolkata Port Trust, Kolkata; Code SBEO) (2015–16, duration 2 months)

India-European Union (EU) Research Project "Energy-efficient, community-based water- and wastewater-treatment systems for deployment in India" (Eco-India) (sponsored by DST, New Delhi) (2013–16, duration 49 months)

Bridge scour estimation, measurement and protection and use of various time systems like TDR, TTS and SA (sponsored by Ministry of Indian Railways, New Delhi) (2006–16, duration 78 months)

To investigate the cause of difficulties towards running CW pump system at Farakka STPP Stage-III (sponsored by WPIL Limited, Kolkata; Code DWPP) (2012, duration 2 months)

Source sustainability study of water (Subarnarekha river) at intake point for APNRL 4×270 MW TPP (sponsored by Adhunik Power & Natural Resources Ltd, Kandra, Jharkhand) (2011, duration 3 months)

Sump model study for Vallur CW pumps (sponsored by WPIL Limited, Kolkata) (2011, duration 6 months)

CW systems equipment package for (i) Barh STPP Stage-II (2×600MW) and (ii) Vallur Thermal Power Project (3×500MW) (sponsored by WPIL Limited, Kolkata; Code VTPP) (2011, duration 6 months)

Hazen-Williams C values for ductile iron pipes (sponsored by Tata Metaliks Kubota Pipes Limited, Kharagpur) (2009, duration 2 months)

Physical sump model study for CW system of Dadri-II, Simhadri-II and Farakka-III STPP of NTPC (sponsored by WPIL Limited, Kolkata) (2009, duration 6 months) (total funding: Rs. 27,00,000) PI

Sump model study for CW System PKG-NTPC (sponsored by Kirloskar Brothers Limited, Pune; Code SMSC) (2008, duration 3 months)

Proof checking report on feasibility study for desilting and renovation of lake system in the Indian Botanic Garden, BSI at Howrah (sponsored by Ministry of Environment and Forests, New Delhi, Code FSDR) (2007, duration 2 months)

Hydraulic model study for make-up water system package for Kahalgaon STPP Stage-II (sponsored by M/s BSBK Private Limited, Bhilai) (2004–05, duration 3 months)

Design of stilling basin and flexible aprons for barrages under variable hydraulic conditions (sponsored by Ministry of Water Resources, New Delhi) (2003–07, duration 42 months)

Determination of scour depth (general bed, channel contraction and bridge piers) in boulder-beds under high stream velocities (sponsored by Ministry of Road Transport and Highways, New Delhi) (2002–05, duration 36 months)

Model study on effective closure of head regulator gate of Nagarjuna Sagar dam under a high head (sponsored by Jessop, Calcutta) (2001, duration 2 months)

Fellowship / Membership of Scientific / Engineering Bodies

Fellow, Indian National Science Academy (FNA)
Fellow, Indian Academy of Sciences (FASc)
Fellow, The National Academy of Sciences India (FNASc)
Fellow, Indian National Academy of Engineering (FNAE)
Fellow, West Bengal Academy of Science & Technology (FWAScT)
Fellow, Indian Society for Hydraulics (FISH)

Fellow, Institution of Engineers (India) (FIE)
Member, American Society of Civil Engineers (MASCE)
Member, World Association for Sedimentation and Erosion Research (MWASER)
Member, International Association for Hydro-Environment Engineering and Research (MIAHR)
Life Member, Indian Association for Computational Mechanics

Attachment to Professional Bodies / Universities

Member, Programme Advisory Committee on Civil, Infrastructure & Transportation Engineering, Science and Engineering Research Board (SERB) (2020–22)
Co-opted Member, Programme Advisory Committee on Civil and Mechanical Engineering, Science and Engineering Research Board (SERB) (2018–20)
Expert, Board of the Doctoral Course in Civil and Industrial Engineering, Università della Calabria, Italy
Member, Indian National Committee on Surface Water, Ministry of Water Resources, India
Member, Technical Committee of Indian Road Congress on Foundation, Sub-Structure Protective Works and Masonry Structures, India
Member, Technical Advisory Committee, Kolkata Port Trust, India
Member, Technical Advisory Committee, Indian Statistical Institute, Kolkata, India (2010–12)

Personal

Home Town: Jalpaiguri Town, West Bengal, India
Spouse: Swastika (*Alias*: Mona) (married on 4 February 1987)
Son: Sibasish (*Alias*: Subhro) (born on 2 July 1988)
Daughter: Sagarika (*Alias*: Sreeja) (born on 24 April 1995)