

Subhasish Dey, FNA, FASc, FNASc, FNAE, JC Bose Fellow



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, shallow fluid flows* and *sediment transport*.

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 182 research papers in refereed journals.

He is an *associate editor* of the *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 of the Royal Society of London A: 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). He also is a *council member* of IAHR (2015–19), *member* of IAHR *Fluvial Hydraulics Committee* (2014–), a *past-council member* of the *World Association for Sedimentation and Erosion Research (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-)

Adjunct Professor Physics & Applied Mathematics Unit, Indian Statistical Institute
Kolkata (2014-19)

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)

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

Guest Editor of Journals

1. Special Issue of Water: *Water-Worked Bedload: Hydrodynamic and Mass Transport*, IWA (2018–)

Associate Editor of Journals

2. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), USA (2008–)
3. *Journal of Hydraulic Research*, International Association for Hydro-Environment Engineering and Research (IAHR), Spain (2013–)
4. *Sedimentology*, Blackwell Publishing (2008–)
5. *Acta Geophysica*, Polish Academy of Sciences, Springer (2010–)
6. *Journal of Hydro-Environment Research*, Elsevier Publishers (2007–)
7. *International Journal of Sediment Research*, Elsevier Publishers (2007–)
8. *Journal of Numerical Mathematics and Stochastics*, Euclidean Press (2009–)
9. *KSCE Journal of Civil Engineering*, Springer (2008–11)

Member of Editorial Board of Journals

1. *Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences*, The Royal Society of London (2018–20)
2. *Flow Measurement and Instrumentation*, Elsevier Publishers (2004–)
3. *Engineering Applications of Computational Fluid Mechanics*, Taylor and Francis, UK (2006–)
4. *International Review of Civil Engineering*, Praise Worthy Prize, USA (2009–)
5. *Water Management Journal*, Institution of Civil Engineers (London), UK (2004–08)

List of Publications

Book (Total Number 1)

1. **Dey S** (2014): *Fluvial Hydrodynamics: Hydrodynamic and Sediment Transport Phenomena*. Springer-Verlag Berlin Heidelberg

Chapter of Book (Total Number 5)

1. 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
2. Ferraro D and **Dey S** (2015): Principles of mechanics of bedforms. P Rowinski and Radecki-Pawlik A (eds), *Rivers - Physical, Fluvial and Environmental Processes*, Springer-Verlag, Berlin, 79–98
 3. **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
 4. 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
 5. **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 182)

1. **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 (in press)
2. 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 (in press)
3. 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
4. **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
5. 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), 11(11), 2212
6. Padhi E, Ali SZ and **Dey S** (2019): Mechanics of bed particle saltation in turbulent wall-shear flow. *Proceedings of Royal Society A, London, UK*, 475(October), 20190318
7. Sarkar S, Ali SZ and **Dey S** (2019): Turbulence in wall-wake flow downstream of an isolated dunal bedform. *Water*, MDPI, 11(10), 1975
8. **Dey S**, Ali SZ and Padhi E (2019): Terminal fall velocity: The legacy of Stokes from the perspective of fluvial hydraulics. *Proceedings of Royal Society A, London, UK*, 475(August), 20190277
9. **Dey S** and Ali SZ (2019): Bed sediment entrainment by streamflow: State of the science. *Sedimentology*, Wiley, 66(5), 1449–1485
10. Ali SZ and **Dey S** (2019): Hydrodynamics of a weakly curved channel. *Physics of Fluids*, American Institute of Physics (AIP), 31(5), 055110
11. 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

12. 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
13. 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
14. Ali SZ and **Dey S** (2019): Bed particle saltation in turbulent wall-shear flow: A review. *Proceedings of Royal Society A, London*, UK, 475(March), 20180824
15. **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
16. 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
17. 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
18. 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
19. Cantero-Chinchilla FN, Castro-Orgaz O, Schmocker L, Hager WH and **Dey S** (2018): Vertically-averaged modelling of granular dike overtopping. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 56(4), 537–550
20. **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
21. 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
22. 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
23. Langhi M, Hosoda T and **Dey S** (2018): Analytical solution of $k-\epsilon$ model for non-uniform flows. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 144(7), 04018033
24. **Dey S** and Ali SZ (2018): Review article: Advances in modelling of bed particle entrainment sheared by turbulent flow. *Physics of Fluids*, American Institute of Physics (AIP), 30(6), 061301
25. **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
26. **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.
27. **Dey S**, Ravi Kishore G, Castro-Orgaz O and Ali SZ (2018): Reynolds stress in submerged turbulent plane offset jets: A mathematical model. *Journal of*

- Engineering Mechanics*, American Society of Civil Engineers (ASCE), 144(6), 06018001
28. 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
 29. **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
 30. 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
 31. 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
 32. Ali SZ and **Dey S** (2017): Hydrodynamic instability of a meandering channel. *Physics of Fluids*, American Institute of Physics (AIP), 29(12), 125107
 33. 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
 34. **Dey S** and Ali SZ (2017): Origin of the onset of meandering of a straight river. *Proceedings of Royal Society A, London, UK*, 473(August), 20170376
 35. **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
 36. **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
 37. **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
 38. Papanicolaou AN, Wilson CG, Sutarto TE, Bertrand F, Rinaldi M, **Dey S** and Langendoen E (2017): Understanding mass erosion processes 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
 39. Fang H, Cheng W, Fazeli M and **Dey S** (2017): Bedforms and flow resistance of cohesive beds both with and without biofilm coating. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 143(8), 06017010
 40. 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
 41. Ali SZ and **Dey S** (2017): Origin of the scaling laws of sediment transport. *Proceedings of Royal Society A, London, UK*, 473(January), 20160785
 42. Ali SZ and **Dey S** (2016): Mechanics of advection of suspended particles in turbulent flow. *Proceedings of Royal Society A, London, UK*, 472(November), 20160749

43. 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
44. 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
45. 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
46. 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
47. Sarkar S, Papanicolaou AN and **Dey S** (2016): Turbulence in gravel-bed stream with an array of large gravel obstacles. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 142(11), 04016052
48. 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
49. Ali SZ and **Dey S** (2016): Hydrodynamics of sediment threshold. *Physics of Fluids*, American Institute of Physics (AIP), 28(7), 075103
50. 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
51. 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
52. 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
53. 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
54. 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
55. 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
56. 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, 120(10), 2176–2199
57. 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

58. Sarkar S and **Dey S** (2015): Turbulent length scales and Reynolds stress anisotropy downstream of a wall mounted sphere. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 53(5), 649–658
59. 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
60. 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
61. Castro-Orgaz O, Hager WH and **Dey S** (2015): Depth-averaged model for undular jump. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 53(3), 351–363
62. 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
63. Castro-Orgaz O and **Dey S** (2014): Second-order shallow flow theory and Dupuit approximation for phreatic aquifers. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 140(9), 04014040
64. Bose SK and **Dey S** (2014): Gravity waves on turbulent shear flow: Reynolds averaged approach. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 140(3), 340–346
65. Bose SK and **Dey S** (2013): Sediment entrainment probability and threshold of sediment suspension: An exponential based approach. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 139(10), 1099–1106
66. Link O, Klischies K, Montalva G and **Dey S** (2013): Effects of bed compaction on scour at piers in sand-clay mixtures. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 139(9), 1013–1019
67. Castro-Orgaz O, Mateos L and **Dey S** (2013): Revisiting the energy-momentum method for rating vertical sluice gates under submerged flow conditions. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 139(4), 325–335
68. Langhi M, Hosoda T and **Dey S** (2013): Velocity deformation model for unsteady: Open channel flows over smooth and rough beds. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 139(4), 433–443
69. Bose SK and **Dey S** (2013): Turbulent unsteady flow profiles over an adverse slope. *Acta Geophysica*, Springer, 61(1), 84–97
70. Castro-Orgaz O, Giráldez JV, Mateos L and **Dey S** (2012): Is the von Kármán constant affected by sediment suspension? *Journal of Geophysical Research, Earth Surface*, American Geophysical Union, 117(F4), F04002
71. **Dey S**, Das R, Gaudio R and Bose SK (2012): Turbulence in mobile-bed streams. *Acta Geophysica*, Springer, 60(6), 1547–1588
72. **Dey S** and Das R (2012): Gravel-bed hydrodynamics: A double-averaging approach. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 138(8), 707–725
73. Bose SK and **Dey S** (2012): Instability theory of sand-ripples formed by turbulent

- shear flows. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 138(8), 752–756
74. Bose SK, Castro-Orgaz O and **Dey S** (2012): Free surface profiles of undular hydraulic jumps. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 138(4), 362–366
 75. **Dey S**, Sarkar S and Ballio F (2011): Double-averaging turbulence characteristics in seeping rough-bed streams. *Journal of Geophysical Research, Earth Surface*, American Geophysical Union, 116(F3), F03020
 76. **Dey S**, Sarkar S, Bose SK, Tait S and Castro-Orgaz O (2011): Wall-wake flows downstream of a sphere placed on a plane rough-wall. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 137(10), 1173–1189
 77. **Dey S**, Helkjær A, Sumer BM and Fredsoe J (2011): Scour at vertical circular piles in sand-clay mixtures under waves. *Journal of Waterway, Port, Coastal, and Ocean Engineering*, American Society of Civil Engineers (ASCE), 137(6), 324–331
 78. Castro-Orgaz O and **Dey S** (2011): Power-law velocity profile in turbulent boundary layers: An integral Reynolds-number dependent solution. *Acta Geophysica*, Springer, 59(5), 993–1012
 79. **Dey S**, Sarkar S and Solari L (2011): Near-bed turbulence characteristics at the entrainment threshold of sediment beds. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 137(9), 945–958
 80. Sarkar S and **Dey S** (2010): Double-averaging turbulence characteristics in flows over a gravel-bed. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 48(6), 801–809
 81. **Dey S**, Nath TK and Bose SK (2010): Fully rough submerged plane wall-jets. *Journal of Hydro-Environment Research*, Elsevier, 4(4), 301–316
 82. Gaudio R, Miglio R and **Dey S** (2010): Nonuniversality of von Kármán's κ in fluvial streams. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 48(5), 658–663
 83. Tafarojnoruz A, Gaudio R and **Dey S** (2010): Flow-altering countermeasures against scour at bridge piers: a review. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 48(4), 441–452
 84. Bose SK and **Dey S** (2010): Universal probability distributions of turbulence in open channel flows. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 48(3), 388–394
 85. **Dey S**, Nath TK and Bose SK (2010): Submerged wall-jets subjected to injection and suction from the wall. *Journal of Fluid Mechanics*, Cambridge University Press, UK, 653(June), 57–97
 86. Tammela S, Marttila H, **Dey S** and Klove B (2010): Effect and design of an underminer structure on flow distribution and local bed topography. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 48(2), 188–196
 87. **Dey S** and Nath TK (2010): Turbulence characteristics in flows subjected to boundary injection and suction. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 136(7), 877–888
 88. Ballio F, Radice A and **Dey S** (2010): Temporal scales for live-bed scour at abutments. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 136(7), 395–402

89. Chen X, Ma J and **Dey S** (2010): Sediment transport on arbitrary slopes: A simplified model. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 136(5), 311–317
90. Bose SK and **Dey S** (2009): Reynolds averaged theory of turbulent shear flow over undulating beds and formation of sand waves. *Physical Review E*, The American Physical Society, 80(3), 036304
91. Bose SK and **Dey S** (2009): Suspended-load of sediment in flow on erodible beds. *International Journal of Sediment Research*, Elsevier, 24(3), 315–324
92. Afzalimhr H and **Dey S** (2009): Influence of bank vegetation and gravel bed on velocity and Reynolds stress distributions. *International Journal of Sediment Research*, Elsevier, 24(2), 236–246
93. Lin WJ, Lin C, Hsieh SC and **Dey S** (2009): Flow characteristics around a circular cylinder placed horizontally above a plane boundary. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 135(7), 697–716
94. Castro-Orgaz O and **Dey S** (2009): One-dimensional channel flow equations with curvature revisited. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 47(2), 157–166
95. Raikar RV and **Dey S** (2009): Maximum scour depth at piers in armor-beds. *KSCE Journal of Civil Engineering*, Springer, 13(2), 137–142
96. **Dey S** and Sarkar A (2008): Characteristics of submerged jets in evolving scour hole downstream of an apron. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 134(11), 927–936
97. **Dey S**, Chiew YM and Kadam MS (2008): Local scour and riprap stability at an abutment in a degrading bed. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 134(10), 1496–1502
98. **Dey S** and Singh NP (2008): Clear-water scour below underwater pipelines under steady flow. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 134(5), 588–600
99. **Dey S** and Papanicolaou A (2008): Sediment threshold under stream flow: A state-of-the-art review. *KSCE Journal of Civil Engineering*, Springer, 12(1), 45–60
100. Lin C, Ho TC and **Dey S** (2008): Characteristics of steady horseshoe vortex system near the junction of square cylinder and base plate. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 134(2), 184–197
101. Raikar RV and **Dey S** (2008): Kinematics of horseshoe vortex developing in an evolving scour hole at a square cylinder. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 46(2), 247–264
102. **Dey S** and Sarkar A (2008): Characteristics of turbulent flow in submerged jumps on rough beds. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 134(1), 49–59 [Errata (2008): *Journal of Engineering Mechanics*, 134(7), 599]
103. **Dey S**, Raikar RV and Roy A (2008): Scour at submerged cylindrical obstacles under steady flow. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 134(1), 105–109
104. Afzalimhr H, **Dey S** and Rasoulianfar P (2007): Influence of decelerating flow on incipient motion of a gravel-bed stream. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 32(October), 545–559
105. **Dey S** and Singh NP (2007): Clear-water scour below underwater pipelines.

- Journal of Hydro-Environment Research*, Elsevier, 1(2), 157-162
106. **Dey S** and Sarkar A (2007): Computation of Reynolds and boundary shear stress in submerged jets on rough boundaries. *Journal of Hydro-Environment Research*, Elsevier, 1(2), 110-117
 107. Bose SK and **Dey S** (2007): Curvilinear flow profiles based on Reynolds averaging. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(9), 1074-1079
 108. Sarkar A and **Dey S** (2007): Effect of seepage on scour due to submerged jets and resulting flow field. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 45(3), 357-364
 109. **Dey S** and Raikar RV (2007): Clear-water scour at piers in sand-beds with an armor-layer of gravels. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(6), 703-711
 110. **Dey S** and Raikar RV (2007): Scour below a high vertical drop. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(5), 564-568
 111. **Dey S** and Raikar RV (2007): Characteristics of horseshoe vortex in developing scour holes at piers. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(4), 399-413
 112. **Dey S** and Raikar RV (2007): Characteristics of loose rough boundary streams at near-threshold. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(3), 288-304
 113. Bose SK and **Dey S** (2007): Theory of free surface flow over rough seeping beds. *Proceedings of Royal Society A*, London, UK, 463(February), 369-383
 114. **Dey S** and Sarkar A (2007): Effect of upward seepage on scour and flow downstream of an apron due to submerged jets. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 133(1), 59-69
 115. **Dey S** and Lambert MF (2006): Discharge prediction in compound channels by end depth method. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 44(6), 767-776
 116. **Dey S** and Raikar RV (2006): Live-bed scour in long contractions. *International Journal of Sediment Research*, Elsevier, 21(2), 167-171
 117. **Dey S** and Sarkar A (2006): Response of velocity and turbulence in submerged wall jets to abrupt changes from smooth to rough beds and its application to scour downstream of an apron. *Journal of Fluid Mechanics*, Cambridge University Press, UK, 556(June), 387-419
 118. **Dey S** and Barbhuiya AK (2006): 3D flow field in a scour hole at a wing-wall abutment. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 44(1), 33-50
 119. Raikar RV and **Dey S** (2006): Pier scour and thin layered-bed scour within a long contraction. *Canadian Journal of Civil Engineering*, National Research Council, Canada, 33(2), 140-150
 120. **Dey S**, Sumer BM and Fredsoe J (2006): Control of scour at vertical circular piles under waves and current. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 132(3), 270-279
 121. **Dey S** and Sarkar A (2006): Scour downstream of an apron due to submerged horizontal jets. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 132(3), 246-257

122. **Dey S** and Barbhuiya AK (2006): Velocity and turbulence in a scour hole at a vertical-wall abutment. *Flow Measurement and Instrumentation*, Elsevier, 17(1), 13–21
123. **Dey S** (2005): Free overfall from circular channels with flat base. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 43(5), 720–723
124. **Dey S** and Barbhuiya AK (2005): Flow field at a vertical-wall abutment. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 131(12), 1126–1135
125. **Dey S** and Raikar RV (2005): Scour at long contractions. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 131(12), 1036–1049
126. Raikar RV and **Dey S** (2005): Scour of gravel beds at bridge piers and abutments. *Water Management Journal*, Institution of Civil Engineers (ICE London), UK, 158(December), 157–162
127. Raikar RV and **Dey S** (2005): Clear-water scour at bridge piers in fine and medium gravel beds. *Canadian Journal of Civil Engineering*, National Research Council, Canada, 32(4), 775–781
128. **Dey S** and Lambert MF (2005): Reynolds stress and bed shear in nonuniform-unsteady open channel flow. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 131(7), 610–614
129. Sarkar A and **Dey S** (2005): Scour downstream of aprons caused by sluices. *Water Management Journal*, Institution of Civil Engineers (ICE London), UK, 158(June), 55–64
130. **Dey S** (2005): End-depth in U-shaped channels: a simplified approach. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 131(6), 513–516
131. **Dey S** and Cheng NS (2005): Reynolds stress in open channel flow with upward seepage. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 131(4), 451–467
132. **Dey S** and Barbhuiya AK (2005): Turbulent flow field in a scour hole at a semicircular abutment. *Canadian Journal of Civil Engineering*, National Research Council, Canada, 32(1), 213–232
133. **Dey S** and Barbhuiya AK (2005): Time-variation of scour at abutments. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 131(1), 11–23
134. Raikar RV and **Dey S** (2004): Flow field in scoured zone of channel contractions. *International Journal of Sediment Research*, Elsevier, 19(4), 292–311
135. Barbhuiya AK and **Dey S** (2004): Local scour at abutments: a review. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 29(October), 449–476
136. **Dey S** and Zanke UCE (2004): Sediment threshold with upward seepage. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 130(9), 1118–1123
137. **Dey S** and Barbhuiya AK (2004): Clear water scour at abutments in thinly armored beds. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 130(7), 622–634
138. Raikar RV, Nagesh Kumar D and **Dey S** (2004): End depth computation in inverted semicircular channels using ANNs. *Flow Measurement and*

- Instrumentation*, Elsevier, 15(5-6), 285–293
139. **Dey S** and Barbhuiya AK (2004): Clear water scour at abutments. *Water Management Journal*, Institution of Civil Engineers (ICE London), UK, 157(June), 77–97
 140. Barbhuiya AK and **Dey S** (2004): Turbulent flow measurement by the ADV in the vicinity of a rectangular cross-section cylinder placed at a channel sidewall. *Flow Measurement and Instrumentation*, Elsevier, 15(4), 221–237
 141. **Dey S** (2004): Critical bed shear for initial movement of sediments on a combined lateral and longitudinal slope. *Nordic Hydrology*, 35(2), 153–164
 142. Sarkar A and **Dey S** (2004): Review on local scour due to jets. *International Journal of Sediment Research*, Elsevier, 19(3), 210–238
 143. Barbhuiya AK and **Dey S** (2004): Measurements of turbulent flow field at a vertical semicircular cylinder attached to the sidewall of a rectangular channel. *Flow Measurement and Instrumentation*, Elsevier, 15(2), 87–96
 144. Barbhuiya AK and **Dey S** (2004): Velocity and turbulence at a wing-wall abutment. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 29(February), 35–56
 145. **Dey S**, Nagesh Kumar D and Ram Singh D (2004): End-depth in inverted semicircular channels: experimental and theoretical studies. *Nordic Hydrology*, 35(1), 73–79
 146. Barbhuiya AK and **Dey S** (2003): Vortex flow field in a scour hole around abutments. *International Journal of Sediment Research*, Elsevier, 18(4), 310–325
 147. **Dey S** (2003): Threshold of sediment motion on combined transverse and longitudinal sloping beds. *Journal of Hydraulic Research*, International Association for Hydraulic Research (IAHR), 41(4), 405–415
 148. **Dey S** (2003): Nonuniform open channel flow with upward seepage through loose beds. *International Journal of Sediment Research*, Elsevier, 18(3), 267–273
 149. **Dey S** (2003): Free overfall in inverted semicircular channels. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 129(6), 438–447
 150. **Dey S** (2003): Overfall in U-shaped channels. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 129(3), 358–362
 151. **Dey S** (2003): Incipient motion of bivalve shells on sand beds under flowing water. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 129(2), 232–240
 152. **Dey S** and Westrich B (2003): Hydraulics of submerged jet subject to change in cohesive bed geometry. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 129(1), 44–53
 153. **Dey S** (2002): Free overfall in open channels: state-of-the-art review. *Flow Measurement and Instrumentation*, Elsevier, 13(5-6), 247–264
 154. **Dey S** (2002): Free overfall from circular channels with flat base. *Flow Measurement and Instrumentation*, Elsevier, 13(5-6), 209–221
 155. **Dey S** and Raju UV (2002): Incipient motion of gravel and coal beds. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 27(December), 559–568
 156. **Dey S** and Kumar A (2002): Initiation of shell motion on sand beds: An experimental study. *International Journal of Sediment Research*, Elsevier, 17(4), 286–

157. **Dey S** and Ravi Kumar B (2002): Hydraulics of free overfall in Δ -shaped channels. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 27(June), 353–363
158. **Dey S** (2002): Secondary boundary layer and wall shear for fully developed flow in curved pipes. *Proceedings of Royal Society A, London*, UK, 458(February), 283–294
159. **Dey S** (2001): A note on critical flow section in collector channels. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 26(October), 432–445
160. **Dey S** (2001): Flow measurement by the end-depth method in inverted semicircular channels. *Flow Measurement and Instrumentation*, Elsevier, 12(4), 253–258
161. **Dey S** (2001): Experimental study on incipient motion of sediment particles on generalized sloping fluvial beds. *International Journal of Sediment Research*, Elsevier, 16(3), 391–398
162. **Dey S** (2001): Bank profile of threshold channels: a simplified approach. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 127(3), 184–187
163. **Dey S** (2001): The EDR in circular channels. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 127(2), 110–112
164. **Dey S** and Debnath K (2001): Sediment pick-up on stream-wise sloping beds. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 127(1), 39–43
165. **Dey S** and Debnath K (2000): Influence of stream-wise bed slope on sediment threshold under stream flow. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 126(4), 255–263
166. **Dey S** (2000): Chebyshev solution as an aid in computing GVF by standard step method. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), 126(4), 271–274
167. **Dey S** (2000): End depth in steeply sloping rough rectangular channels. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 25(February), 1–10
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169. **Dey S**, Dey Sarker HK and Debnath K (1999): Sediment threshold under stream flow on horizontal and sloping beds. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 125(5), 545–553
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172. **Dey S** (1998): End depth in circular channels. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), 124(8), 856–863
173. **Dey S** and Sil SN (1998): Choke-free flow in trapezoidal channels with change in

- bed elevation. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 23(June), 259–267
174. **Dey S** (1998): Free overfall in rough rectangular channels: a computational approach. *Water, Maritime and Energy Journal*, Institution of Civil Engineers (ICE London), UK, 130(March), 51–54
 175. **Dey S** (1997): Local scour at cylindrical piers, part I: a review of developments of research and part II: bibliography. *International Journal of Sediment Research*, Elsevier, 12(3), 23–57
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 178. **Dey S** (1995): Three-dimensional vortex flow field around a circular cylinder in a quasi-equilibrium scour hole. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, 20(December), 871–885
 179. **Dey S** and Kar SK (1995): Bed shear in evolving scour at a circular cylinder: a theoretical approach. *International Journal of Sediment Research*, Elsevier, 10(1), 13–31
 180. **Dey S** (1994): No-choke flow in trapezoidal channels. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), 120(10), 2224–2231
 181. **Dey S** and Bose SK (1994): Bed shear in equilibrium scour around a circular cylinder embedded in loose bed. *Applied Mathematical Modelling*, Elsevier, 18(5), 265–273
 182. **Dey S** (1988): Flood discharge of Torsa river in North Bengal. *Indian Journal of Earth Sciences*, 15(4), 314–324

Conference Proceedings (Total Number 32)

1. Rathore V, Penna N, **Dey S** and Gaudio R (2019): Computation of bed shear stress from velocity measurements in a gradually varying roughness bed. *Proceedings of Thirty-Eight International Association for Hydraulic Research World Congress*, Panama City, Panama, 5886–5893
2. **Dey S** and Ali SZ (2018): Phenomenological description of scaling laws of sediment transport. *Proceedings of River Flow 2018*, Lyon, France, 40, 04001
3. Ali SZ and **Dey S** (2018): Phenomenology of meandering of a straight river. *Proceedings of River Flow 2018*, Lyon, France, 40, 05004
4. Padhi E, Penna N, Gaudio R, Desai VR and **Dey S** (2018): Flow over a water-worked bed. *Proceedings of River Flow 2018*, Lyon, France, 40, 05006
5. Ali SZ and **Dey S** (2017): Turbulent shear flow over a sinusoidal bed. *Proceedings of Thirty-Seventh International Association for Hydraulic Research World Congress*, Kuala Lumpur, Malaysia, 362–371
6. **Dey S** and Ali SZ (2017): Sediment inception by stream flow: a novel mathematical model. *Proceedings of Thirty-Seventh International Association for Hydraulic Research World Congress*, Kuala Lumpur, Malaysia, 372–381
7. Penna N, Padhi E, **Dey S** and Gaudio R (2017): Flow over a water-worked bed. *Proceedings of Thirty-Seventh International Association for Hydraulic Research World*

Congress, Kuala Lumpur, Malaysia, 623–632

8. Dey S and Ali SZ (2016): Hydrodynamics of sediment transport: Grain scale to continuum scale. *Proceedings of Eighth International Conference on Scour and Erosion (ICSE-2016)*, Oxford, UK, CD-ROM
9. **Dey S**, Sarkar S, Bose SK, Tait S and Castro-Orgaz O (2013): Wall-wake flows downstream of a spherical particle placed on a gravel bed. *Proceedings of Thirty-Fifth International Association for Hydraulic Research World Congress, Chengdu, China, A11043*, CD-ROM
10. **Dey S**, Das R, Gaudio R, and Bose SK (2011): Response of bed-load to turbulence in mobile-bed streams. *Symposium on River, Coastal and Estuarine Morphodynamics (RCEM 2011)*, Beijing, China, 925–948, CD-ROM
11. Langhi M, Hosoda T and **Dey S** (2011): One dimensional depth-averaged velocity deformation model for unsteady open channel flows. *13th International Summer Symposium, JSCE*, 83–86
12. **Dey S** and Bose SK (2008): A Reynolds averaged theory of turbulent shear flow over stable sinusoidal beds and formation of sand waves. *Advances in Hydro-Science and Engineering, Eighth International Conference on Hydro-Science and Engineering*, Nagoya, Japan, CD-ROM
13. **Dey S**, Sumer BM and Fredsoe J (2006): Control of scour around circular piles under waves and current. *Third International Conference on Scour and Erosion*, Amsterdam, The Netherlands, 169–173
14. **Dey S** and Sarkar A (2006): Turbulent flow in submerged jumps on rough beds. *Second International Conference on Application of Fluid Mechanics in Industry and Environment*, ISI, Kolkata, 166–172
15. **Dey S** and Raikar RV (2006): Flow characteristics over gravel-beds at near-threshold. *Second International Conference on Application of Fluid Mechanics in Industry and Environment*, ISI, Kolkata, 158–165
16. Ho CT, Lin C and **Dey S** (2005): Characteristics of horseshoe vortex system near the junction of rectangular cylinder and base plate. *Twenty-Seventh Ocean Engineering Conference*, National Chung Hsing University, 195–202
17. Raikar RV and **Dey S** (2005): Scour at bridge piers in fine and medium gravel beds. *National Conference on Advances in Water Engineering for Sustainable Development*, IIT, Chennai, 43–51
18. Sarkar A and **Dey S** (2005): Scour hole characteristics downstream of an apron due to submerged horizontal jets. *National Conference on Advances in Water Engineering for Sustainable Development*, IIT, Chennai, 33–41
19. Raikar RV and **Dey S** (2004): Scour at the channel contractions in the gavel-beds. *Second International Conference on Scour and Erosion*, Singapore, 229–236
20. **Dey S** and Sarkar A (2004): Local scour downstream of an apron caused by submerged horizontal jet. *Second International Conference on Scour and Erosion*, Singapore, 293–300
21. **Dey S** and Barbhuiya AK (2003): Design scour depth at abutments in thin-armor layers. *Proceedings of International Conference on Construction Management and Materials*, IIT, Kharagpur, India, 295–304
22. Raikar RV and **Dey S** (2002): Movement of gravels in rivers: a review. *Conference on Hydraulics, Water Resources and Ocean Engineering*, IIT, Bombay, India, 38–44
23. **Dey S** and Westrich B (2002): Local scour of cohesive bed downstream of an

- apron due to submerged jet. *Proceedings of International Conference on Advances in Civil Engineering*, IIT Kharagpur, India, Vol. 1, 363–371
24. **Dey S** and Debnath K (2002): An overview on sediment threshold. *Proceedings of International Conference on Advances in Civil Engineering*, IIT Kharagpur, India, 437–445
 25. **Dey S** (2001): Incipient motion of bivalve shells on sand beds under currents. *Proceedings of Fourteenth Australasian Fluid Mechanics Conference*, Adelaide University, Adelaide, Australia, 889–892
 26. **Dey S** (2000): Open channel flow metering by end depth method. *Proceedings of Global Conference on Flow Metering and Control for New Millennium*, Palghat, Kerala, India, 409–422
 27. **Dey S**, Dey Sarker, HK and Debnath K (1999): Sediment threshold on stream-wise bed slopes. *Proceedings of 26th National Conference on Fluid Mechanics and Fluid Power*, Indian Institute of Technology, Kharagpur, India, 255–262
 28. **Dey S** (1999): Secondary motion of fluid in curved pipes: turbulent case. *Proceedings of Twenty-Sixth National Conference on Fluid Mechanics and Fluid Power*, Indian Institute of Technology, Kharagpur, India, 155–163
 29. **Dey S** (1994): Bed shear in equilibrium scour around a circular pier. *Proceedings of National Symposium on Recent Trends in Design of Hydraulic Structures*, University of Roorkee, Roorkee, India, 293–300
 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 S K 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

Reviewer of Journals

1. *Journal of Fluid Mechanics*, Cambridge University Press, UK
2. *Physics of Fluids*, American Institute of Physics (AIP), USA
3. *Journal of Hydraulic Engineering*, American Society of Civil Engineers (ASCE), USA
4. *Journal of Engineering Mechanics*, American Society of Civil Engineers (ASCE), USA
5. *Journal of Irrigation and Drainage Engineering*, American Society of Civil Engineers (ASCE), USA
6. *Journal of Waterway, Port, Coastal and Ocean Engineering*, American Society of Civil Engineers (ASCE), USA
7. *Journal of Hydrologic Engineering*, American Society of Civil Engineers (ASCE), USA
8. *Journal of Geophysical Research, Earth Surface*, American Geophysical Research, USA
9. *Water Resources Research*, American Geophysical Research, USA
10. *Journal of Hydraulic Research*, International Association for Hydraulic Research, Spain
11. *European Journal of Mechanics / B Fluids*, Elsevier Publishers
12. *Water Management Journal*, Institution of Civil Engineers (London), UK
13. *Canadian Journal of Civil Engineering*, National Research Council, Canada

14. *Journal of Turbulence*, Taylor and Francis
15. *Sedimentology*, Blackwell Publishing
16. *Acta Geophysica*, Polish Academy of Sciences, Springer
17. *Experiments in Fluids*, Springer
18. *Irrigation Science*, Springer
19. *Environmental Fluid Mechanics*, Springer
20. *Central European Journal of Physics*, Springer
21. *KSCE Journal of Civil Engineering*, Springer
22. *Fluid Dynamics Research*, Elsevier Publishers
23. *Applied Mathematical Modelling*, Elsevier Publishers
24. *Advances in Water Resources*, Elsevier Publishers
25. *Flow Measurement and Instrumentation*, Elsevier Publishers
26. *Journal of Hydro-Environment Research*, Elsevier Publishers
27. *Engineering Structures*, Elsevier Publishers
28. *International Journal of Sediment Research*, Elsevier Publishers
29. *Computers and Fluids*, Elsevier Publishers
30. *Computers and Geosciences*, Elsevier Publishers
31. *Ocean Engineering*, Elsevier Publishers
32. *Coastal Engineering*, Elsevier Publishers
33. *Computers and Fluids*, Elsevier Publishers
34. *Hydrological Processes*, Wiley, UK
35. *Earth Surface Processes and Landforms*, Wiley, UK
36. *Hydrology Research*, IWA Publishing, UK
37. *International Journal of River Basin Management*, UK
38. *Australian Journal of Water Resources*, Engineers Australia, Australia
39. *Engineering Applications of Computational Fluid Mechanics*, Hong Kong
40. *International Journal of Applied Mathematics and Mechanics*, Hong Kong
41. *Water Science and Engineering*, China
42. *Asian Journal of Science and Technology for Development*, Thailand
43. *Sadhana, Academy Proceedings in Engineering Sciences*, Indian Academy of Sciences, India
44. *Indian Journal of Engineering and Material Sciences*, Council of Scientific and Industrial Research, India
45. *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

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 Engineering, University of Florence, Italy
- 2008 (two-day): *Sediment transport and scour*, Department of Process and Environmental Engineering, 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

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

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

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 Austauschdiens (DAAD) Fellowship, Germany, 2003
Deutscher Akademischer Austauschdiens (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

Adelaide University, Australia (2001): Worked on Reynolds stress and bed shear in nonuniform-unsteady open channel flow in Department of Civil and Environmental Engineering, Adelaide University, 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

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, 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 Engineering, Nagoya University, Japan (2008)

Visiting Professor, Department of Civil and Environmental Engineering, University of Florence, Italy (2008)

Visiting Professor, Department of Process and Environmental Engineering, 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, Adelaide University, 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, Adelaide University, 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 Científicas, Spain (2007-). Topic: Hydraulics

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-). Topic: Turbulence and Sediment Transport

Professor Hongwei Fang, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (2011-). 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-). Topic: Hydrodynamics

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

Professor Luca Solari, Department of Civil and Environmental Engineering, University of Florence, Italy (2008-). 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 Engineering, 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–). Topics: Fluvial hydraulics, Open channel hydraulics

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

Projects

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)

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)

Source sustainability study of water (Subarnarekha river) at intake point for APNRL 4×270 MW TPP (sponsored by Saraikela-Kharsawan District, Jharkhand) (2011)

Sump model study for Vallur CW pumps (sponsored by WPIL, Kolkata) (2011)

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

Sump model study for Dadri, Simhadri and Farakka CW pumps (sponsored by WPIL Limited, Kolkata) (2009)

CW pump sump model study (sponsored by Kirloskar Brothers Limited) (2008)

Research Issues on Riverine Bank Stability Analysis in the 21st Century (sponsored by Obermann Center for Advanced Studies, The University of Iowa, USA) (2006)

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

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

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)

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

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, Indian Society for Hydraulics (FISH)

Fellow, Institution of Engineers (India) (FIE)

Member, World Association for Sedimentation and Erosion Research (2010–13)

Member, International Association for Hydro-Environment Engineering and Research (IAHR)

Life Member, Indian Association for Computational Mechanics

Attachment to Professional Bodies / Universities

Co-opted Member, Programme Advisory Committee on Civil and Mechanical Engineering, Science and Engineering Research Board (SERB) (2019-)

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)