BIO-DATA

Dr. Prashant Kumar,
(Assistant Professor since January 2015)
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(Division of Mathematics)
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Date of Birth: 23/02/1982

1. **Academic Qualification** (Undergraduate Onwards)

SN	Degree	Year	Subject	University/Institution	% of marks
1.	B.Sc.	2001	Mathematics, Chemistry and Physics	MJP Rohilkhand University, Bareilly, UP	71.70
2.	M.Sc.	2005	Mathematics	Indian Institute of Technology Delhi	6.77/10
3.	Integrated Ph.D.	2013	Computational Applied Mathematics	Pohang University of Science and Technology (POSTECH), South Korea.	3.77/4.3

2. **Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.**

Ph.D. Title: Modeling and Simulation for Wave Induced Oscillation in a Geometrically Arbitrary Domain with Corner Contribution and Chebyshev Point Discretization,

Ph.D. Supervisor: Prof. Kim Kwang Ik, Department of Mathematics, POSTECH, South Korea, Year Award: February 2014.

3. **Teaching Experience**

- **Courses (2007~2013):** Regular teaching assistant of Calculus-I, Calculus-II, Applied linear algebra, Mathematical analysis, Applied numerical analysis, Applied complex variables, Different equations, Probability and statics.
- **Hilbert classes (2009~2013)**: Every semester Hilbert classes are taken to teach undergraduate student for solving mathematics problems in various courses.
- **Lecturer (2006~2007):** Taught **Mathematics-I and Mathematics-II** as lecturer in Sachdeva Institute of Technology, Mathura, UP, India.
  Courses taught at NIT Delhi (2015-2016)
- **For UG students:** Mathematics-I (Advanced Calculus), Numerical Technique and Graph Theory, Mathematics-IV, Probability and Statistics,
- **For Ph.D. students:** Research Methodology (Numerical Analysis and Linear algebra), Mathematical Modeling.

4. **Master and Ph.D. Thesis Supervision**

- I have supervised one master thesis in Master of Science (M.Sc.) in Mathematics title on "**Mathematical Modeling of Wave Induced Oscillation in a Rectangular Domain by using Hybrid Finite Element Method**".

- **Ph.D. Supervision**

SN	NAME	Year of Joining	Topic of Research
1.	Gulshan	Aug. 2015	Boundary Element Modeling
2.	Rupali	Aug. 2016	Hybrid Finite Element Method
3.	Sukhwinder Kaur	Aug. 2016	Statistical Analysis of Climate Models
4.	Vinita	January 2018	Modeling of Boussinesq Equation for Shallow water waves
5.	Kush Kinra	Aug. 2018	Mathematical formulation of Non-linear waves (solitons)

- **Junior Research Fellow (Under the Sponsored Project)**

SN	NAME	Project Duration	Project Title
1.	Prashant Patel	Jul. 2017-2020	Modeling and simulation of moored ship motion in Paradip port under the resonance conditions for multidirectional random waves
2.	Prachi Priya	Jul 2018-2021	Influence of Natural Climate variability on Indian wave climate

5. **Work experience (in chronological order).**

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1.	Assistant Professor	National Institute of Technology Delhi	16-01-2015	present	AGP8000 (Rs.1,30,000/month)
2.	Post-Doctoral Fellow	POSTECH, South Korea.	01-03-2014	15-01-2015	2000,000 KRW/month

6. **Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.**

S.No.	Name of Award	Awarding Agency	Year
1.	TA Assistantship	Department of Mathematics, POSTECH, South Korea	2007-20013
2.	Post-Doctoral Fellowship	Climate Change Research Laboratory (CCRL) POSTECH, South Korea	2014-2015
3.	Early Carrera Research Award	SERB, DST, Govt. of India	2017
4.	International Travel Scheme(ITS) Grant	SERB, DST, Govt. of India	2017
5.	Young Scientist Award	Ministry of Earth Sciences (MoES), Govt. of India	2018

7. **Publications (List of papers published in SCI Journals, in year wise descending order).**

S No.	Publication Title	Authors	Journal Name	Journal Volume	Year	Start-End page	Are you the Corresponding Author (Y/N)
1	Tsunami wave Modeling by using a modified Non-linear Boussinesq equation	Prashant Kumar* and Sukhwinder Kaur	Applied Mathematical Modeling	Submitted	Aug. 2018	NA	Yes
2	Moored Ship Motion Analysis in Paradip Port under the resonance conditions using 3-D Boundary Element Method	Gulshan and Prashant Kumar*	Engineering Analysis with Boundary Elements	Under Review	2018	NA	Yes
3	Spectral Boundary Element Modeling of Shallow Water waves in an Irregular Domain	Rupali and Prashant Kuamr *	Ocean Engineering	Under Review	2018	NA	Yes
4	Modeling of shallow water waves with variable bathymetry in an irregular domain by using hybrid finite element method	Kumar P* and Rupali	Ocean Engineering (8^{th} Rank based h-index)	165	2018	386-398	Yes
5	Theoretical analysis of extreme wave oscillation in Paradip Port using a 3-D boundary element method	Kumar P*, Gulshan	Ocean Engineering (8^{th} Rank based h-index)	164	2018	13-24	Yes
6	Extreme Wave Induced Oscillation in Paradip Port under the Resonance Conditions	Kumar P*, Gulshan	Pure and Applied Geophysics	174	2017	4501-4516	Yes
7	Modeling wave and spectral characteristics of a moored ship motion in Pohang New Harbor under the resonance conditions	Kumar, P*., Zhang, H., Kim, K.I., Yuen, D.A.	Ocean Engineering (8^{th} Rank based h-index)	119	2016	101-113	Yes
8	Influence of Climate Variability on Extreme Ocean Wave Height Assessed from ERA- Interim and ERA20C Reanalyses	Kumar P., Min, S.K.*, Weller, E., Lee H., Wang X.	Journal of Climate (2^{nd} Rank as h-Index)	29	2016	4031-4046	No

9	Hydrodynamics modeling of moored ship motion in an irregular domain,	Kumar, P.*, and Kim, K.I.,	Procedia Engineering (Scopus-Index)	127	2015	598-604	Yes
10	Modeling wave spectra of multidirectional random ocean waves in a harbor through combination of boundary integral of Helmholtz equation with Chebyshev point discretization.	Kumar, P., Zhang, H.*, Kim, K.I., Yuen, D.A. Shi, Y.	Computer & Fluids	108	2014	13-24	No
11	Wave field analysis in a harbor with irregular geometry through boundary integral of Helmholtz equation with corner contributions.	Kumar, P., Zhang, H.*, Kim, K.I., Yuen, D.A.	Computer & Fluids	88	2013	287-297	No
12	Spectral Density Analysis for Wave Characteristics in Pohang New Harbor,	Kumar, P., Zhang, H.*, Kim, K.I.*,	Journal of Pure and Applied Geophysics (PAGEOPH),	171	2013	1169-1185	No

8. **Books/Reports/Chapters/General articles etc.: Chapter**

S.No	Title	Author's Name	Publisher	Year of Publication
1.	A moored ship motion analysis in realistic Pohang New Harbor and Modified PNH	Kumar P.*, Gulshan Batra, Kim K.I.,	springer	2015

9. **International conference proceedings(Scopus-Index)**

Sl. No.	Author (s)	Year	Title	Complete Reference of Conference
1.	**Kumar P.*,** Rajni, Rupali	2018	Wave Induced Oscillation in an Irregular domain by using Hybrid Finite Element Model	8th International Conference on Applied Physics and Mathematics (ICPAM-2018) held on January 27-29, 2018 at Phuket, Thailand. Published in Journal of Physics conference series, IOP Sciences (Scopus Index)
2.	Rajni, and **Kumar P.***	2018	Numerical Modeling of Ion-Size Effect on Electroosmotic Flow in Nanochannels.	2nd International Conference on Modern Mathematical methods and High Performance Computing in Science and Technology (M3HPCST 2018) on January, 4-7, 2018.

				Accepted for publication Proceedings of Jangjeon Mathematical society (Scopus index)
3.	**Kumar P.*,** Rajni, Rupali	2018	Wave Induced Oscillation in an Irregular Domain by Using Hybrid Finite Element Model	2nd International Conference on Modern Mathematical methods and High Performance Computing in Science and Technology (M3HPCST 2018), January, 4-January, 7, 2018. Accepted for publication Proceedings of Jangjeon Mathematical society (Scopus index)
4.	**Kumar P.*,** Rajni, Rupali	2017	Multidirectional Random Wave Diffraction in a Real Harbor by using 3-D Boundary Element Method.	2nd International Conference on Recent advances in Mathematical Sciences and its Applications (RAMSA) held on 12-14 December, 2017 at Noida. Published in American Institute of Physics (AIP) proceedings.
5.	Rajni, **Kumar P.*,**	2017	Mathematical modelling of influence of ion size effects in an electrolyte in a Nanoslit with overlapped EDL	2nd International Conference on Recent advances in Mathematical Sciences and its Applications held on 12-14 December, 2017 at Noida. Published in American Institute of Physics (AIP) proceedings.
6.	**Prashant Kumar*** and Kim Kwang Ik	2017	A moored ship motion with the consideration of mooring and fender force under the resonance conditions	International Conference on Ship and Offshore Technology (ICSOT) held on 7th-8th December 2017 at IIT Kharagpur, India. Published in ICSOT proceedings.
7.	**Kumar, P**.*, Gulshan., Kim K.I.	2015	A moored ship Motion Analysis in Realistic Pohang New Harbor and Modified PNH	International Conference on Modern Mathematical methods and High Performance Computing in Science and Technology (M3HPCST 2015) organized by RKGIT, Ghaziabad U. P. (Published in as Book Chapter in Springer)
8.	**Kumar, P**.*, Kim K.I.,	2015	Hydrodynamics modeling of moored ship motion in an irregular domain	International Conference on Computational Heat and Mass Transfer (ICCCHMT-2015) organized by Department of Mathematics, National Institute of Technology, Warangal Orissa on 30th November 2015 to 2nd December 2015, Vol. 127, Proceeding of ICCCHMT-2015.
9.	**Kumar, P**.*, Kim K.I.,	2012	Spectral density analysis of a moored ship motion in Pohang New Harbor	KSIAM conference at Kyungpook National University, Daegu on 23rd – 24th Nov. 2012, In Proceedings: KSIAM 2012.
10.	**Kumar, P**.*, Kim K.I.,	2012	Mathematical modeling of the ship hydrodynamics in Pohang New Harbor	Mathematical Society of Japan (MSJ) Autumn Meeting 2012, Kyushu University, Fukuoka, Japan on 18th -22nd Sep. 2012, In

				Proceedings of KMS-MSJ proceedings (4 page)
11.	**Kumar, P**.*, Kim K.I.,	2012	Numerical Simulation of the Pohang New Harbor for Sciche Reduction	International Conference on Mathematical Modeling and Applied Soft Computing (MMASC-2012), Coimbatore India on 11th -13th July 2012, In Proceedings of MMASC 2012
12.	**Kumar, P**.*, Kim K.I.,	2010	Theoretical analysis and model based simulation of the POSCO New Harbor and the modified POSCO New Harbor	**Kumar, P**., Kim K. I., International Conference on Challenges and Applications of Mathematics in Science and Technology (CAMIST-2010), organized by Department of Mathematics, NIT ROURKELA India on 11th -13th January 2010. vol. 2, pp. 329-337, in Proceedings of CAMIST 2010.

Note: * represent the corresponding authors.

10. **International Conference Talks and Presentation (Abstract only)**

S. No.	Author (s)	Year	Title	Complete Reference of Conference
1.	**Kumar, P**., Kim K.I.,	2017	Hybrid finite element modeling for wave induced oscillation in Pohang New Harbor	International conference on Mathematics and its Application, organized by Department of Mathematics, Ramjas College, Delhi University from 26-28th April 2017.
2.	**Kumar, P**., Seung Ki Min	2015	Influence of Climate variability modes	2015 Climate Variability Workshop, School of Environment Science and Engineering, POSTECH, Pohang, South Korea on 12th-13th January 2015.
3.	**Kumar, P**., Kim K.I.,	2013	A 3-D Boundary Element Model to Analyze the Multidirectional Random wave diffraction in a Harbor with Complex Geometry	7th International conference on Mathematical Science for Advancement of Science and Technology (MSAST 2013), Kolkata, India on 21st -23rd December 2013.
4.	**Kumar, P**., Kim K.I.,	2013	A moored ship motion analysis in arbitrary harbor geometry with various directional incident waves	The Asian Mathematical Conference (AMC-2013) at BEXCO center, Busan, South Korea on 30th June-4th July 2013.
5.	**Kumar, P**., Kim	2012	Spectral density analysis	KMS Spring Meeting 2012

	K.I.,		of the Pohang new harbor	Sookmyung Women's University Seoul on 28th April 2012.
6.	**Kumar, P**., Boguk Kim, Kim K.I.,	2011	The Boundary Integral Method for the Computation of Linearized Ocean Surface Wave Fields in a Highly Irregular Bounded Geometry",	KMS Fall Meeting 2011, Kyungpuk National University, Daegu, South Korea on 21st -22n October 2011,
7.	**Kumar, P**., Kim K.I.,	2010	Wave-Induced Ship Motion Analysis in the POSCO New Harbor via Helmholtz Equation with Numerical Simulations	2010 Global KMS International Conference, POSTECH, Pohang on 22n-23rd October 2010.
8.	**Kumar, P**., Kim K.I., 1	2010	A moored ship motion analysis with the resonant frequency waves in the POSCO New Harbor	International Congress of Mathematics (ICM)-2010 Hyderabad India on 19th -27th August 2010, and the title
9.	**Kumar, P**., Kim K.I., 1	2009	Theoretical analysis and model based simulation to resolve the cause of POSCO New Harbor hazards".	2009 Joint meeting of Korean Mathematical Society (KMS) and American Mathematical Society (AMS), Ewha Women's University, Seoul, Korea on 16th -20th December 2009.

11. **Seminar/workshop/Invited talks**

S.N.	Year (date and time)	Place	Seminars/Workshops/ Schools	Title of paper read, if any
1.	19/06/2015 5:00~6:30 PM	Math Bldg. POSTECH South Korea	Applied Mathematics Seminar	Modeling and Analysis of Moored Ship Motion in Pohang New Harbor under the Resonance Conditions
2.	25/06/2015 5:00~6:30 PM	Math Bldg. POSTECH South Korea	Applied Mathematics Seminar	Influence of Climate Variability on Extreme Ocean Wave Height Assessed From ERA-Interim and ERA40 Reanalyses.
3.	30/06/2015 5:00~6:30 PM	Math Bldg. POSTECH South Korea	Applied Mathematics Seminar	Stress analysis in mooring ropes and fender of a Moored ship under the resonance Conditions.

4.	31/12/2015 4:00~5:30 PM	Math Bldg. POSTECH South Korea	Winter school (Applied Mathematics Seminar)	Moored Ship Motion Analysis in a complex geometry Domain
5.	02/01/2016 3:00~4:30 PM	Math Bldg. POSTECH South Korea	Winter school (Applied Mathematics Seminar)	Impact of El Nino on Ocean Surface Wave Height for ERA-Interim and ERA20C Reanalyses
6.	04/01/2016 4:00~5:30 PM	Math Bldg. POSTECH South Korea	Winter school (Applied Mathematics Seminar)	Hybrid Finite Element Modeling for wave oscillation in Pohang New Harbor
7.	09-06-2016 Time: 4:30-5:30 PM	Math Bldg. POSTECH South Korea #404	Applied Mathematics Seminar	Global Influence of Natural Climate Variabilities on Extreme Ocean Wave Height Accessed by ERA-Interim and ERA20C Reanalyses
8.	03-06-2016 Time: 4:30-5:30 PM	Math Bldg. POSTECH South Korea #404	Applied Mathematics Seminar	Wave Spectral Characteristics of Moored Ship Motion in Pohang

12. **External Sponsor project**

SN	Title of Project	Funding agency	Amount (Rs.)	Ongoing/completed
1.	Modeling and simulation of moored ship motion in Paradip port under the resonance conditions for multidirectional random waves	SERB, DST, Govt. of India	18,02,240	Ongoing (2017-2020)
2.	Influence of natural climate variability over Indian ocean wave climate accessed by re-analysis and CMIP5 model data	Ministry of Earth Sciences	31,50,000	Ongoing (2018-2021)

13. **Academic Collaborators and Recommendation (References)**

Prof. Kim Kwang Ik (Professor, Academic advisor): Office-127, Department of Mathematics, POSTECH, Pohang, South Korea. Email: kimki@postech.ac.kr, M.Ph. No: +82-10-5370-2044
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Declaration

I declare that all the information given above is true to the best of my knowledge.

Prashant Kumar **Date:** 21-09-2018