

# Bio-data

## Personal Data

**Name:** SOMNATH KARMAKAR

**Date of Birth:** May 11, 1986

**Nationality:** Indian

**Sex:** Male

**Current Academic Position:** a) **Designation:** Assistant Professor

b) **Affiliation:** Department of Chemistry, Raghunathpur College, Purulia  
Pin-723 133, West Bengal, India.

**Contacts:** E-mail: [skarmakarbu@gmail.com](mailto:skarmakarbu@gmail.com), [skarmakarbu@rediffmail.com](mailto:skarmakarbu@rediffmail.com)

Phone No: +91-9474494960 (M)

## Academic Qualifications

Name of Examination passed	Name of Board/Council/University/Institute	Division/Classes	Rank	Year of passing	% of marks obtained	Subject(s) taken
Madhyamik Pariksha	West Bengal Board of Secondary Education	1 <sup>st</sup>	-	2001	86%	Bengali, English, Mathematics, Physical. Sc., Life sc, History, Geography
Higher Secondary	West Bengal Council of Higher Secondary Education	1 <sup>st</sup>	-	2003	81.20%	Bengali, English, Mathematics, Physics, Chemistry, Biology
B. Sc. Three-Year Honours Degree Course	The University of Burdwan	1 <sup>st</sup>	1 <sup>st</sup>	2006	78.625%	Chemistry(H), Mathematics (Gen), Physics(Gen), Bengali (compulsory), English (compulsory), ENVS (compulsory)
M. Sc.	The University of Burdwan	1 <sup>st</sup>	1 <sup>st</sup>	2008	87.75%	Chemistry (Special Paper: <b>Physical Chemistry</b> )
Joint CSIR-UGC Test for JRF and Eligibility for Lectureship (NET)	Joint CSIR-UGC	-	-	Held on 23 <sup>rd</sup> December, 2007	Junior Research Fellowship and eligible for Lectureship (JRF-LS)	Chemical Sciences
GATE	Department of Secondary and Higher Education, Ministry of Human Resource Development, Govt. of India	-	All India Rank: 41	Held on 10 <sup>th</sup> February, 2008	99.32 Percentile	CY- Chemistry
Ph.D.	The University of Burdwan	-	-	13 <sup>th</sup> December 2016	-	Chemistry

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### Award, Medal, Prize and Fellowship

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- Obtained the 'D.P.I. Special Stipend Scheme, Sl. No. in Merit List 2036 MP-2001-2002' (Memo No. 1876(30)-SS dated 29.03.2007) for the B.Sc. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> year.
- Obtained the 'W.B. Govt. Merit-Cum-Means Scholarship, 2006' (Memo No. 80(23)Gen/SS, Sl. No. in Merit List 64, dated 27.06.2007) from the Director of Public Instruction (Scholarship & Stipend), Education Directorate, Government of West Bengal for performance at under-graduate level.
- Obtained the 'Post-Graduate Merit Scholarship for University Rank Holder (2006-08)' (Memo No. F.5-10/2007(SA-III), dated 29 March 2008) from the Ministry of Human Resource Development, Government of India (University Grants Commission, Bahadur Shah Zafar Marg, New Delhi-110002) for outstanding performance at under-graduate level (Rank: 1st) for pursuing post-graduate studies.
- Won the 'University Gold Medal' having been placed first in the first class in the M.Sc. examination 2008 in Chemistry from the University of Burdwan.
- Won the Gourikanta Mukherjee Memorial Gold Medal' having secured highest percentage of marks in the M.Sc. examination 2008 in Chemistry from the University of Burdwan.
- Won the 'Tarunendra Bose Gold Medal' having secured highest percentage of marks in the M.Sc. examination 2008 in science group from the University of Burdwan.
- Won the 'Raimoni & Bhudhar Samanta G.P. Silver Medal' having secured highest percentage of marks in the M.Sc. examination 2008 in science group from the University of Burdwan.
- Won the 'Dr. Panchanan Roy & Late Surendra Kumar Roy Prize' having secured highest percentage of marks in the M.Sc. examination 2008 in science group from the University of Burdwan.
- Junior Research Fellowship under CSIR Scheme from Council of Scientific and Industrial Research, Govt. of India in 2007 (December).
- Secured 3<sup>rd</sup> position in poster presentation in the national level seminar entitled 'Design, Synthesis, Interactions, Chemical and Biochemical Activities of Different Functional Molecule' organized by the University of Burdwan, Burdwan, W.B. (04-06 February 2016).
- Selected best oral presenter in the state level seminar on 'A Scientific, Social & Economic Impact on Environment: Awareness, Benefits & Limitations' organized by Raghunathpur College, Purulia (10<sup>th</sup> January 2017).

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### Research Experience

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**Title of the thesis:** Study on some  $\pi$ -conjugated molecules and reaction networks in the light of graph theory

**Supervisor:** Dr. Bholanath Mandal, Associate Professor, Department of Chemistry, The University of Burdwan, Burdwan, West Bengal.

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### Area of Research Interest

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Theoretical chemistry that concerns the application of Graph Theory

- to investigate the stability, reactivity and MOs of some  $\pi$ -conjugated molecular systems
- to deal with problems involving reaction networks

**Research Papers Published in Journals**

Sl. No.	Title with Page Nos.	Journal, Publishing house	ISSN/ ISBN No.	Whether peer reviewed. Impact Factor, if any	No. of Co-authors	Whether you are the main author
1	<b>Graph Theoretical Solutions for the Coupled Kinetic Rate Equations</b> , (accepted, DOI: 10.1021/jp4109865) (2014, <b>118</b> , 1155-1161)	<i>J. Phys. Chem A, ACS Publications</i>	ISSN:1089-5639(print) 1520-5215(web)	<b>Peer reviewed (2.693)</b>	2	<b>Yes</b>
2	<b>Graph Theoretical Analysis on the Kinetic Rate Equations of Linear Chain and Cyclic Reaction Networks</b> (accepted, DOI: 10.1021/jp504722q), (2014, <b>118</b> , 7672-7682)	<i>J. Phys. Chem A, ACS Publications</i>	ISSN: 1089-5639(print) 1520-5215(web)	<b>Peer reviewed (2.693)</b>	2	<b>Yes</b>
3	<b>Eigensolutions of Cyclopolyacene Graphs</b> , (accepted, DOI: 10.1080/00268976.2014.971898) (2015, <b>113</b> , 07, 719-726).	<i>Molecular Physics Taylor &amp; Francis</i>	ISSN: 0026-8976 (Print), 1362-3028 (Online)	<b>Peer reviewed (1.720)</b>	3	<b>Yes</b>
4	<b>Eigensolutions of Dodecahedron Graphs</b> , (accepted, DOI: 10.1016/j.cplett.2014.01.020) (2014, <b>594</b> , 41-46)	<i>Chem. Phys. Lett., ELSEVIER</i>	ISSN: 0009-2614	<b>Peer reviewed (1.897)</b>	3	No
5	<b>Cardinalities of Poly(<i>p</i>-Phenylene) Graphs</b> (accepted, DOI:10.1080/00268976.2014.901571) ( 2014, <b>112</b> , 20, 2646-2653)	<i>Molecular Physics Taylor &amp; Francis</i>	ISSN: 0026-8976 (Print), 1362-3028 (Online)	<b>Peer reviewed (1.720)</b>	3	No
6	<b>Schematic generation of characteristic polynomials and the Hosoya indices of mono- and di-substituted polymer graphs of linear chains and cycles</b> , ( March 2014, <b>91</b> , 503-515)	<i>J. Indian Chem. Soc., Indian Chemical Society</i>	ISSN: 0019-4522	<b>Peer reviewed (0.173)</b>	4	No
7	<b>Matrix product forms for the characteristic polynomial coefficients of poly(<i>p</i>-phenylene) graphs</b> ( December 2014, <b>91</b> , 2197-2210).	<i>J. Indian Chem. Soc., Indian Chemical Society</i>	ISSN: 0019-4522	<b>Peer reviewed (0.173)</b>	3	No
8	<b>Symmetry-adapted linear combinations for the eigenvalues and eigenvectors of reciprocal graphs</b> (DOI: 10.1080/00268976.2016.1229872) (2016, <b>114</b> , 22, 3307-3318)	<i>Molecular Physics Taylor &amp; Francis</i>	ISSN: 0026-8976 (Print), 1362-3028 (Online)	<b>Peer reviewed (1.720)</b>	4	No
9	<b>{X,Y}-cyclacene graphs with next nearest neighbor interactions</b> (DOI: 10.1080/10406638.2017.1293699)	<i>Polycyclic Aromatic Compounds, Taylor &amp; Francis</i>	ISSN: 1040-6638 (Print), 1563-5333 (Online)	<b>Peer reviewed (0.959)</b>	2	<b>Yes</b>

### Employment Details & Teaching Experience

Name of the post	Institution where employed	Permanent or temporary or contract basis	Date of joining (exact date)	Date of leaving (exact date)
Assistant Teacher	Kulti High School(H. S.), Kulti, Burdwan, 713343	Permanent	22.09.2008	06.04.2010
Assistant Professor	Raghunathpur College, Raghunathpur, Purulia, 723133	Permanent	07.04.2010	Continuing

### Training Course Attended (UGC Academic Programme)

Sl. No.	Programme	Duration	Organised by
1	92 <sup>nd</sup> Orientation Programme	06.09.2013-03.10.2013	UGC-ASC, The University of Burdwan
2	1 <sup>st</sup> refresher Course in Biological sciences	10.10.2014-30.10.2014	UGC-ASC, The University of Burdwan

### Poster/Oral Presentation in Seminar/Conference

Sl. No.	Title of the Paper Presented	Title of the Conference/Seminar	Organized by	Whether international/national/state level	Period (held on)
1 (Poster)	Graph Theoretical Eigensolution of [20]Fullerene	Recent Developments in Research in Chemistry	West Bengal State University, Barasat, Kolkata, WB	National Level Seminar	23 <sup>rd</sup> November 2013
2 (Poster)	Graph Theoretical Eigenvalues of Cyclopolyacene Graphs	Recent Advances in Chemistry & Industry (2014)	Indian Chemical Society APC Road, Kolkata, WB	National Level Symposium	01 <sup>st</sup> - 02 <sup>nd</sup> August 2014
3 (Poster)	Determination of Total $\pi$ -Electron Energy & HOMO-LUMO Gap in Cyclopolyacene Molecule: A Graph Theoretical Approach	Recent Progress in Chemistry-2014	Sidho-Kanho-Birsha University, Purulia, WB	State Level Seminar	13 <sup>th</sup> August 2014
4 (Poster)	Solutions for the Multistep Coupled Kinetic Rate Equations : A Graph Theoretical Approach	Chemistry for Better Tomorrow-Current trends and Opportunity	Sidho-Kanho-Birsha University, Purulia, WB	National Level Conference	2 <sup>nd</sup> - 3 <sup>rd</sup> December 2014
5 (Poster)	Determination of Analytical Expression of the Eigenvalues of Dodecahedron Graph	Modern Chemistry: An Interdisciplinary Science	Nistarini College, Purulia, WB	National Level Conference	19 <sup>th</sup> January 2015

6 (Poster)	Graph Theoretical Determination of the Concentrations of the Species Involved in Multistep Reactions	Advanced Spectroscopy, Theoretical Chemistry, Synthesis, Reactivity and Structural Evaluation	The University of Burdwan	National Level Seminar	19 <sup>th</sup> – 21 <sup>st</sup> February 2015
7 (Poster)	Determination of analytical expression of $\pi$ -MO energy eigenvalues of cyclopolyacene molecules considering next-neighbour interactions	Chemistry for Better Tomorrow – Disarmament and Peaceful Uses of Chemistry	Sidho-Kanho-Birsha University, Purulia, WB	National Level Seminar	15 <sup>th</sup> December 2015
8 (Poster)	Eigensolutions of cyclopolyacene graphs with next nearest neighbor interactions	Design, Synthesis, Interactions, Chemical and Biochemical Activities of Different Functional Molecules	The University of Burdwan	National Level Seminar	04-06 February 2016
9 (Poster)	Graph theoretical determination of $\pi$ -MO energy eigenvalues of [20]fullerene	Chemistry: An Innovation Driver in Materials Science	Raghunathpur College	National Level Science Academies' Lecture Workshop	27-28 September 2016
10 (Poster)	Graph theoretical determination of $\pi$ -MO energy eigenvalues and total $\pi$ -electron energies of cyclopolyacene molecules considering presence and absence of nnn interactions	Recent Advances in Chemistry for Better Tomorrow (RACBT-2016)	Kashipur MM Mahavidyalaya, Kashipur, Purulia	National Conference	24-25 November 2016
11 (Oral)	Removal or Detoxification of Heavy Metals from Living System	A Scientific, Social & Economic Impact on Environment: Awareness, Benefits & Limitations	Raghunathpur College	State Level Seminar	10 <sup>th</sup> January 2017
12 (poster)	Determination of Total $\pi$ -Electron Energy & HOMO-LUMO Gap in Cyclacene Molecule: A Graph Theoretical Approach	Science: Past, Present & Future	Syamsunder College, Purba Burdwan	International Level Seminar	12 <sup>th</sup> December 2017

- **Participation in the workshop on framing of semester based UG syllabi as per choice based credit system (CBCS) organized by Sidho Kanho Birsha University, Purulia on 24.03.2017**

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