Curriculum vitae of A. Sarkar

Name & designation

ANINDYA SARKAR
Professor (HAG) & Head, Department of Geology and Geophysics
Coordinator, National Stable Isotope Facility
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Department/Organisation

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Academic Qualifications

M.S., University of Calcutta
Ph.D., Physical Research Laboratory (Dept.of Space), Ahmedabad

Positions held

Institution	Year	Position
Physical Research Laboratory Ahmedabad	1989-91	Post-doctoral Fellow
Godwin Laboratory Cambridge University	1989	INSA Travel Fellow
Mass Spectrometer Laboratory **Presidency College** Calcutta.	1992-93	Research Associate
Department of Applied Geology Indian School of Mines, Dhanbad	1993-1998	Lecturer
Geologisk Institut Copenhagen University, Denmark	1994	Visiting Scientist
Department of Applied Geology Indian School of Mines, Dhanbad	1998-2002	Assistant Professor
Tokyo University, Tokyo, Japan	1998-99	Visiting Scientist (JSPS Fellow)

Department of Geology & Geophysics, Indian Institute of Technology Kharagpur	2002-2007	Associate Professor
University College London, UK.	2004	Royal Soc. Visiting Scientist
Department of Geology & Geophysics, Indian Institute of Technology Kharagpur	2007 till date	Professor
Ion Probe Facility, **Swedish Natural History Museum**	2010	Visiting Scientist
Department of Earth & Atmospheric Sciences, Purdue University, USA	2010	Visiting Professor
Institute of Advanced Studies, Bristol University, U.K.	2010	Benjamin Meaker Professor

Memberships of Academic bodies/Institution

a) Member, International Geological Correlation Program (IGCP) Project 467 on Triassic time and trans-Panthalassan correlations
b) Member, Indian Society of Mass Spectrometry
c) Member: Research Advisory Council, Birbal Sahni Institute, Lucknow, 2008-09
d) Member: PAMC Earth Science, DST, 2012-2015
e) Member, International Geosphere-Biosphere -World Climate Research Programme, Indian National Science Academy, 2016 onwards
f) Member, PAMC, Ocean Science and Resources, MOES, 2013 till date
g) Member, Sectional Committee, Earth & Atmospheric Sciences, Indian National Science Academy, 2016 onwards
h) Assoc. Editor, Journal of Earth System Science, Springer-IASc.
i) Reviewer, Jour. Geol. Soc. Ind., Gondwana Research, Current Science, Earth System Science (Ind. Acad. Sc.), Jour. Contaminant hydrology, Applied Geochemistry (Elsevier), Sedimentology.
j) Ex-Member, Indo-US organizing committee on frontiers of science.
k) Member, Coastal zone regulatory authority, MOEF.

Honours/Awards

a) Recipient of the young scientist's Medal 1985 of the Indian Society of Earth sciences
b) Recipient of the **Indian National Science Academy (INSA) young scientist's Medal in Earth and Atmospheric sciences, 1990**
c) Recipient of the "Best Paper award in Earth and Planetary Sciences" of the Indian Society of Mass Spectrometry, 1991
d) **National Mineral Award, 1999,** Ministry of Mines, Govt. of India
e) **Fellow, Indian National science academy, 2011**
f) **Fellow, Indian Academy of sciences Bangalore, 2012**
g) **Fellow, West Bengal Academy of Science & Technology (WAST)**

Field of specialisation

Stable isotope Geochemistry, Palaeoclimatology, Geochronology, Sedimentology

Research contribution

~32 years experience in **Isotope Geochemistry** and stable isotope mass spectrometry; initiated teaching and research programmes on stable isotope geochemistry and mass spectrometry in general and past climate change, mass extinction events in earth history and isotope hydrology in connection with on-going climate change in particular; also developed new experimental techniques in the field of stable isotope measurements; used stable isotope tools to tackle variety of geological and climatic problems. published large number of research articles in peer reviewed journals including Nature and mentored number of masters and Ph.D. students.; established country's first National Stable Isotope Facility at IIT, Kharagpur sponsored by the Department of Science and Technology under the IRHPA programme to provide quality isotope data to students and researchers from Universities so that they are not dependent on foreign laboratories and to create trained manpower in stable isotope research. Few major areas of research: Application of stable isotopes in Archaeology, Sedimentology, isotope and sequence stratigraphy of Palaeogene Himalayan foreland sediments and lignite basins of western India, Tropical PETM records, modern deltas; Arsenic pollution in Bengal basin; Monsoon variability and deep ocean circulation over century to million year time scale using stable and short lived radio-isotope systematics of carbonates, organic matter and water; Causes of extinction events across major geological boundaries namely Precambrian/Cambrian, Permo-Triassic, Cretaceous/Tertiary, Eocene/Oligocene etc. using isotope and geochemical tracers; Geochemistry and geochronology of mafic-ultramafic rocks from Singhbhum Craton using trace elements, REE, Rb-Sr, Sm-Nd and silicate stable isotope systematics.

Extensively lectured at **Max Planck Institute** fur chimie, Mainz, Germany, Department of Geosciences, **Bremen University**, Germany, Geologisk Institut, Cambridge University; **Copenhagen University**, Denmark, **Kyoto Univ**., Japan, **Tokyo Univ**., Japan **Tsukuba Univ**., Japan **Swedish Natural History Museum, Department of Earth & Atmospheric Sciences,** Purdue University; **Public lecture at Bristol University.**

Sponsored research

(1) Principal investigator of an **INSA** sponsored project on Stable isotopes of Kutch Palaeogene carbonates, 1993-1996 (total outlay ~ Rs.1.5 lakhs; completed).
(2) Principal investigator of a **DST** project on Isotope and Geochemical studies across the Eocene-Oligocene boundary of Kutch, 1996-2000 (outlay~Rs. 6.5 lakhs; completed).
(3) Co-investigator, **Danish National Science Foundation project** on "Studying Cretaceous – Tertiary Boundary in the Lametas and Deccan infratrappean", 1995-1999 (completed).
(4) Co-investigator of a **CSIR** sponsored project on Silica sand beneficiation jointly with the
(4) Mineral engineering department, ISM (outlay~ Rs. 4.5 lakhs; completed).
(5) Co-investigator, **Indo-US joint pilot project** on Himalayan glaciers, aerosols and climate change sponsor Indo-US forum, US$ 25000/-; 2009-2011; completed.
(6) Principal Investigator, **National stable Isotope facility project at IIT, Kharagpur, sponsored by DST** (outlay ~Rs. 230 lacs, 2004-2010; completed).
(7) Co-investigator, IWIN National program, **DST**, 2010-2014; 20 lakhs, completed.
(8) Principal investigator, In-situ Uranium leaching, **ONGC**, 2016, 1.1 crore (ongoing)

Collaborative Research

(1) With **Physical Research Laboratory**, Ahmedabad on stable isotopes of water.
(2) With **Tokyo Metropolitan Univ**. on INAA geochemistry of sedimentary rocks.
(3) With **Tsukuba Univ., Japan** on sulfur isotopes of coal and sedimentary rocks from Raniganj coal field.
(4) With **University College London**, on Arsenic pollution in Bengal delta.
(5) With **Univ. of Wisconsin, Georgia Tech., USA & IIT, Kanpur** on Himalayan glacier (**new**)
(6) With **Swedish Natural History Museum** on Ion probe studies of Proterozoic pyrites (**new**).
(7) With **Bristol Univ.** on compound specific isotope study of sediments (**new**).
(8) With **Department of Earth & Atmospheric Sciences, Purdue University** on Lignin chemistry of Ganges delta sediments (**new**)

Former graduate students

Abhijit Roy, Sr.Geologist, Geological Survey of India
Sushanta Sarangi, Assoc. Prof., Indian Institute of Technology Dhanbad
Saikat Sengupta, Scientist, Climate change centre, Indian Inst. of Tropical Meteorology, Pune
Melinda K. Bera, Asst.Professor, Indian Institute of Technology Kharagpur
Arpita Samanta, Asst. Professor, Calcutta University

Current graduate students

Sangbaran Ghosh Maulik
Torsa Sengupta
Fulmati Ram

MS and Masters (M. Tech.) students: 40 (completed); 1 (ongoing)

Publications ***(Total citation: 1157; h-index: 18)***

Journals

1) Oxygen isotope in archaeological bioapatites from India: Implications to climate change and decline of Bronze Age Harappan civilization, **Anindya Sarkar**, Arati Deshpande Mukherjee, M K Bera, B Das, Navin Juyal, P Morthekai, R D Deshpande, V S Shinde, L S Rao, **Scientific Reports (Nature)**, DOI: 10.1038/srep26555, (2016).

2) Khan, A.A., Pant, N.C., **Sarkar, A**., Tandon,S.K., Thamban, M., Mahalinganathan, K. (2016). The Himalayan cryosphere: A critical assessment and evaluation of glacial melt fraction in the Bhagirathi basin. **Geoscience Frontiers**, doi:10.1016/j.gsf.2015.12.009. (2016)

3) Climate modulated sequence development in a tropical rift basin during the Late Paleocene-Early Eocene super greenhouse Earth by A. Samanta, M.K. Bera, **A. Sarkar, Sedimentology (International Association of Sedimentologists)**, doi: 10.1111/sed.12243 (2016)

4) Carbon isotopic ratios of modern C3-C4 plants from the Gangetic plain, India and its implications to paleovegetational reconstruction by Sayak Basu, Shailesh Agrawal, Prasanta Sanyal, Poritosh Mahato, Satyam Kumar, **Anindya Sarkar, Palaeogeography, Palaeoclimatology, Palaeoecology**, 440, 22–32 (2015)

5) Oxygen isotope composition of Sparidae (sea bream) tooth enamel from well-dated archaeological site as an environmental proxy in the East Mediterranean: A case study from Tel

Dor, Israel by G. Sisma-Ventura, I. Zohar, **A. Sarkar**, K. Bhattacharyya, A. Zidane, A. Gilboa, G. Bar-Oz, D. Sivana **Journal of Archaeological Science**, 64, 46–53 (2015)

6) A~ 50 ka record of monsoonal variability in the Darjeeling foothill region, eastern Himalayas by R Ghosh, S Bera, **A Sarkar**, DK Paruya, YF Yao, CS Li **Quaternary Science Reviews**, 114, 100-115 (2015)

7) Carbon isotopic composition of lignin biomarkers: Evidence of grassland over the Gangetic plain during LGM, by **A Sarkar**, Timothy R Filley, S Bera **Quaternary International**, 355, 194-201 (2015)

8) Carbon and oxygen isotope systematics of a Paleoproterozoic cap-carbonate sequence from the Sausar Group, Central India by Sarada Prasad Mohanty , Arijit Barik , Sshant Sarangi, **A. Sarkar, Palaeogeography, Palaeoclimatology, Palaeoecology**, 417, 195-209 (2015)

9) Isotope (C and O) composition of auriferous quartz carbonate veins, central lode system, Gadag Gold Field, Dharwar Craton, India: Implications to source of ore fluids, by RHS S.K. Swain, S. Sarangi, R. Srinivasan, **A. Sarkar**, S. Bhattacharya **Ore Geology Reviews**, 70, 305-320 (2015)

10) Reply to the discussion on: "Carbon and oxygen isotope systematic of a Paleoproterozoic cap-carbonate sequence from the Sausar Group, Central India" bySarada Prasad Mohanty , Arijit Barik , Sushant Sarangi, **A. Sarkar Palaeogeography, Palaeoclimatology, Palaeoecology**, 438, 425–427 (2015)

11) Late Quaternary climate variability and vegetation response in Ziro Lake Basin, Eastern Himalaya: A multiproxy approach by , R Ghosh, DK Paruya, MA Khan, S Chakraborty, **A Sarkar**, S Bera, **Quaternary International**, 325, 13-29 (2014)

12) Do the large carbon isotopic excursions in terrestrial organic matter across Paleocene–Eocene boundary in India indicate intensification of tropical precipitation? A. Samanta,M.K. Bera,Ruby Ghosh,Subir Bera,Timothy Fillley,Kanchan Pande,S.S. Rathore,Jyotsana Rai, **A. Sarkar**, **Palaeogeography, Palaeoclimatology, Palaeoecology**, 387, 91–103 (2013).

13) Migration of arsenic in multi-aquifer system of southern Bengal Basin: analysis via numerical modeling by P.K. Sidar, P. Sahu, S.P. Ray, **A. Sarkar**, S. Chakarabarty, **Environmental earth Sciences**, 10.1007/s12665-013-2274-6, (2013)

14) Late Paleocene-early Eocene carbon isotope stratigraphy from a near-terrestrial tropical section and antiquity of Indian mammals *by* A. Samanta, **A. Sarkar**, M.K. Bera et al. **Jour. Earth System science**, **387, 91-103.** (2013).

15) Carbon isotope studies of auriferous quartz carbonate veins from two orogenic gold deposits from the Neo-Archean Chitradurga schist belt, Dharwar craton, India: evidence for mantle /magmatic source of auriferous fluid *by* Sarangi, S., **Sarkar, A.,** Srinivasan, R., and Patel, S.C**. Jour. Asian Earth Sc., 52, 1-11** (2012).

16) Kinetic Fractionation of Water Isotopes during Liquid Condensation under Super-saturated Condition *by* Deshpande, R.D., Maurya1, A.S., Kumar, B., **Sarkar, A**. and Gupta, S.K **Geochim. Cosmochim. Acta**, **100, 60-72** (2012).

17) M.K. Bera, **Sarkar, A**. S.K. Tandon, P. Sanyal, and A. Samanta, 2010, Does burial diagenesis reset pristine isotopic compositions in paleosol carbonates? **Earth and Planetary science Letters, 300, 85-100.**

18) Deshpande, R. D., Maurya,A. S., Kumar, B., **Sarkar, A.** and Gupta, S. K., 2010, Rain-Vapor Interaction and Vapor Source Identification using Stable Isotopes from Semi-Arid Western India, **Journal of Geophysical Research (Atmosphere)**, 115, D23311, doi:10.1029/2010JD014458.

19) Sanyal, P., **Sarkar, A.**, Bhattacharya, S.K. et al., 2010, Intensification of monsoon, microclimate and asynchronous C4 appearance: Isotopic evidence from the Indian Siwalik sediments, **Palaeogeog. Palaeoclim. Palaeoecol.** 296, 165-173.

20) M.K. Bera, **A. Sarkar**, P.P. Chakrabarty, V. Ravi Kant and A. K. Choudhury, 2010, Forced regressive shoreface sandstone from Himalayan foreland: implications to early Himalayan tectonic evolution, **Sedimentary Geology,** 229, 268-281.

21) M.K. Bera, Kasturi Bhattacharya, **A. Sarkar,** A. Samanta, Kishor Kumar and Ashok Sahni, 2010, Oxygen isotope analysis of bone and tooth enamel phosphate from Palaeogene sediments: experimental techniques and initial results, 2010, **Journal of the Geological Society of India,** 76, 275-282.

22) J.M. McArthur, D.M. Banerjee, S. Sengupta, , P. Ravenscroft, S. Klump, **A. Sarkar**, B. Disch and R. Kipfer, Migration of As, and $^{3}H/^{3}He$ ages, in groundwater from West Bengal: implications for monitoring, 2010, **Water Resources Research**, 44, 4171 -4185.

23) M.K. Bera, **A. Sarkar,** P.P. Chakrabarty, R. Loyal and P. Sanyal, 2010. "Reply to comments of Singh, B. P. on Marine to continental transition in Himalayan foreland", **Bulletin Geological Society of America**, 122 (5-6), p. 956-959.

24) Prasanta Sanyal, B.C. Acharya, S.K. Bhattacharya, **A. Sarkar**, S. Agrawal , M.K. Bera, 2009, Origin of graphite, and temperature of metamorphism in Precambrian Eastern Ghats Mobile Belt, Orissa, India: A carbon isotope approach *by*. **Journal of Asian Earth Sciences**, 36, 252–260.

25) **A. Sarkar**, P.P. Chakraborty, B. Mishra et al., 2009 Mesoproterozoic sulphidic ocean, delayed oxygenation and evolution of early life: sulphur isotope clues from Indian Proterozoic basins, **Geological Magazine** (Cambridge), doi:10.1017/S0016756809990380, **1.85, 0.**

26) **A. Sarkar**, P.P. Chakrabarty, J.M. McArthur,et al., 2009, Evolution of Ganges–Brahmaputra western delta plain: Clues from sedimentology and carbon isotope, **Quaternary Science Reviews**, 28, 2564-2581. **4.7, 0**

27) J.M. McArthur, P. Ravenscroft, S. Sengupta, C. Bristow, **A. Sarkar**, S. Tonkin, R. Purohit, **2008**, How paleosols influence groundwater flow and arsenic pollution: A model from the Bengal Basin and its worldwide implication. **Water Resources Research (AGU)**, 44, W11411, doi:10.1029/2007WR006552, **2.154,1**.

28) M.K. Bera, **A. Sarkar**, P.P. Chakrabarty, R.S. Loyal and P. Sanyal, **2008**, Marine to continental transition in Himalayan foreland, **Bulletin Geological Society of America,** 120, 1214-1232. **2.05,1**.

29) *****S. Sengupta, J. McArthur, **A. Sarkar**, P. Ravenscroft, D.M. Banerjee, Do ponds cause arsenic pollution in Bengal basin? An answer from West Bengal in India, **2008**, **Environmental Science & Technology (Am. Chem. Soc.)**, 42, 5156-5164. **4.363,4**.

30) *****S. Sengupta and **A. Sarkar**, **2006**, Stable isotope evidence of dual (Arabian Sea and Bay of Bengal) vapour sources in monsoonal precipitation over north India, **Earth and Planetary Science Letters (Elsevier),** 250, 511–521. **3.873,7**.

31) A. Roy and **A. Sarkar**, **2006**, Geochronological constraints on evolution of Singhbhum mobile belt and associated basic volcanics of Eastern Indian shield: comment, **Gondwana Research**, 9, 541-542. **1.357,0**.

32) A. Roy, **A. Sarkar,** S. Jeyakumar, S.K. Aggrawal, M. Ebihara and H. Satoh, 2004, Late Archaean mantle metasomatism below eastern Indian craton: evidence from trace elements, REE geochemistry and Sr – Nd – O isotope systematics of ultramafic dykes, **Journal of Earth system science**, 113, 649-665. **0.476,1**.

33) P.P. Chakraborty and **A. Sarkar**, **2004**, Discussions on C, O, Sr and Pb isotope systematics of carbonate sequences of the Vindhyan Supergroup, India: age, diagenesis, correlations and implications for global events by J. S. Ray, J. Veizer and W.J. Davis (Precambrian Research, 121, 2003,103-140), **Precambrian Research**, 129, 185-188. **3.247, 0**

34) ***A. Sarkar**, S. Sarangi, M. Ebihara, S.K. Bhattacharya and A.K. Ray, **2003**, Carbonate geochemistry across the Eocene-Oligocene boundary of Kutch, western India: Implications to oceanic O_2-poor condition and foraminiferal extinction, **Chemical Geology (Elsevier**), 201, 281-293. **3.231,3**.

35) ***** **A. Sarkar**, S. Sarangi, S.K. Bhattacharya and A.K. Ray, **2003,** Carbon isotopes across the Eocene-Oligocene boundary sequence of Kutch, western India: Implications to oceanic productivity and pCO_2 change, **Geophysical Research Letters (American Geophysical Union),** 30, 1588-1591**. 2.744,3**.

36) ***** **A.Sarkar**, H. Yoshioka, M. Ebihara and H. Naraoka, **2003,** Geochemical and organic carbon isotope studies across the continental Permo-Triassic boundary of Raniganj basin, Eastern India, **Palaeogeog. Palaeoclim. Palaeoecol. (Elsevier),** 191, 1-14. **2.162,20**.

37) ***** A.Roy, **A. Sarkar**, S. Jeyakumar et al., **2002,** Sm-Nd age and mantle source characteristics of the Dhanjori volcanic rocks, Eastern India, **Geochemical Journal (Geochemical Society of Japan)**, 36, 503-518. **1.2,17**.

38) P.P. Chakrabarty, **A. Sarkar**, S.K. Bhattacharya and P. Sanyal, **2002,** Isotopic and sedimentological clues to productivity change in late Riphean sea: A case study from two intracratonic basins of India, P.P. Chakraborty, **Journal of Earth system science**, 111,379-390. **0.476,5**.

39) A. Roy, **A. Sarkar**, S. Jeyakumar, S.K. Aggrawal and M. Ebihara, **2002,** Mid-Proterozoic plume related thermal event in Eastern Indian craton: evidence from trace elements, REE

geochemistry and Sr–Nd isotope systematics of mafic-ultramafic intrusives from Dalma volcanic belt, **Gondwana Research**, 5, 133-146. **1.357,18**.

40) ***** S. Sarangi, **A. Sarkar**, M.M. Sarin, S.K. Bhattacharya, M. Ebihara and A.K. Ray, **2001,** Growth rate and life span of Eocene/Oligocene Nummulites tests: inferences from Sr/Ca ratio. **Terra Nova (European Journal of Geoscience),** 13, 264-269. **2.065,3**.

41) ***** **A. Sarkar**, R. Ramesh, S. K. Bhattacharya and N. B. Price, **2000**, Palaeomonsoon and palaeoproductivity records in $\delta^{18}O$ and $\delta^{13}C$ and $CaCO_3$ variations in northern Indian ocean sediments. **Journal of Earth system science, Prof. K. Gopalan commerotative vol.,** 109,157-170. **0.476,5**.

42) S. Sarangi, **A. Sarkar**, S.K. Bhattacharya and A. K. Ray, **1998**, Isotopic evidence of a rapid cooling and continuous sedimentation across the Eocene-Oligocene boundary of Wagapadhar and Waior, Kutch, **Jour. Geol. Soc. Ind**.,51,248-251.**0.424,4**.

43) A. Roy and **A. Sarkar**, **1997,** Sr, Pb, Nd isotope studies and their bearing on the petrogenesis of the Jalor and Siwana complexes, Rajasthan, India by Dhar et al. : A comment., **Jour. Geol. Soc. Ind .** , 49, 465-466. **0.424,0**.

44) A. Roy, **A. Sarkar**, S. K. Bhattacharya, H.Ozaki and M. Ebihara, **1997**, Rare earth element geochemistry of selected mafic-ultramafic units from Singbhum craton: Implications to source heterogeneity, **Jour. Geol. Soc. Ind**, 50, 716-727. **0.424,4**.

45) **A. Sarkar**, A. Roy, G.S. Ghatak and S. K. Bhattacharya, **1996,** Strontium isotope study of Krol-Tal carbonates: implication to the strontium isotope flux of Himalayan rivers. **Ind. Jour. Geol**., 68, 255-262.

46) H.J. Hansen, D.M. Mohabey and **A. Sarkar**, **1996,** Lameta age: Dating the main pulse of Deccan traps volcanism, **Gondwana Geol. Mag**.,2, 365-374. **15**

47) ***** **A. Sarkar**, A.K. Roy and S.K. Bhattacharya, **1996,** Stable isotope and faunal assemblage studies of early Palaeogene sequence, Kutch, Western India: Palaeoenvironmental implications. **Palaeogeog. Palaeoclim. Palaeoecol**. **(Elsevier)**, 121, 65-71. **2.162,9**.

48) ***** **A. Sarkar**, S.K. Bhattacharya and M.M. Sarin, **1993,** Geochemical evidence for anoxic deep water in the Arabian sea during the last glaciation. **Geochim. Cosmochim. Acta (Pergamon Press)**, 57, 1009-1016. **3.665, 38**.

49) R. Nigam and **A. Sarkar**, **1993,** Mean proloculus size, $\delta^{18}O$ and $\delta^{13}C$ variations in recent benthic foraminiferas from West coast, India: Climatic implications. **Ind. Jour. Earth Sc**., 20, 11-6.

50) ***** **A. Sarkar**, S. K. Bhattacharya, P.N. Shukla, N. Bhandari and D.P. Naidin, **1992,** High resolution $\delta^{18}O$ profile of stable isotopes and Iridium across a K/T boundary section from Koshak hill, Mangyshlak, Kazakhstan., **Terra Nova (European Jour. Geosc.)**, 585-590. **2.065, 8**.

51) **A. Sarkar** and S. K. Bhattacharya, **1992, Current Science**, Carbonatites from Rajasthan indicate mantle carbon and oxygen isotopic composition. vol. 62, No.4, 368-370. **0.728,5**.

52) * **A. Sarkar**, S. K. Battacharya and D.M. Mohabey, **1991**, **Geology (Geol. Soc. America)**, Stable isotope analysis of dinosaur eggshells paleoenvironmental implications : vol. 19, 1068-1071. **3.48,18**.

53) **A. Sarkar**, R. Ramesh and S. K. Bhattacharya, **1990**, **Terra Nova (European Jour. Geosc.)**, Effect of sample pretreatment and size fraction on the $\delta^{18}O$ and $\delta^{13}C$ values of foraminifera in Arabian sea sediments. vol.2, 488-493. **2.065, 12**.

54) ***A.Sarkar**, R.Ramesh, S.K.Bhattacharya and G. Rajagopalan, **1990**, Oxygen isotope evidence for a stronger winter monsoon current during the last glaciation. Nature, vol. 343, 549-551.28.75, 82

55) Y. Herman, S. K. Bhattacharya, K. Perch-Nielsen, D.P. Naidin, V. T. Frolov, J. D. Jeffers and A. Sarkar, 1988, Cretaceous-Tertiary boundary marine extinctions: the Russian platform record. **Revista Espanola de Paleontologia**, n. Extraordinario 131-140, **3**

56) **A. Sarkar**, **1986**, Cretaceous-Tertiary boundary: an enigma in earth sciences sciences. **Ind. Jour. Earth Sc.**, vol.13,no.1, 14-37.

(e) Chapters contributed to books

1) H.J. Hansen, **A. Sarkar**, S. Lojen, P. Toft, **2000**, Magnetic susceptibility and organic carbon isotopes of sediments across some marine and terrestrial Permo-Triassic boundaries, In: **H. Yin, J.M. Dickins (ed.) Permian-Triassic evolution of Tethys and Western Circum-Pacific, Elsevier Science,** 271-290.

2) **A.Sarkar** and S. K. Bhattacharya, **1992**, Glacial to interglacial isotopic changes in planktonic and benthic foraminifera from the western Arabian sea. In: Desai, B.N. (ed.), **Oceanography of the Indian ocean**, Oxford & IBH, New Delhi 417-425.

(g) other publications/reports

1) **A. Sarkar**, **2001**, Application of stable isotope geochemistry in earth sciences: Present status and future needs, Current Science, 80, 124-125.**0.728**.

2) **A. Sarkar**, **2006**, National facility for stable isotope geochemistry at IIT, Kharagpur, Jour. Geological Soc. of India, 68, 160-162.**0.424,1**.

3) **A. Sarkar**, **2009**, **Palaeontology and cases of fraud,** Current Science, 97, 291.

Conference abstracts (International; *not updated*)

1. $\delta^{18}O$ studies in dinosaur eggshells: A clue to palaeowind. A.Sarkar and S. K. Bhattacharya, Sixth International Conf. On Gochronology, Cosmochronology and Isotope Geology (ICOG), Cambridge, UK, Terra Cognita, 6, no.2, 1986.

2. Palaeoceanographic studies in the Arabian sea. A. Sarkar, R. Ramesh and S. K. Bhattacharya, Third International Conf. On Palaeoceanography, Cambridge, UK, 1989.

3. Correlated enrichment of uranium and organic carbon in an eastern Arabian sea core during the last glacial maximum (LGM). A. Sarkar, S. K. Bhattacharya and M. M. Sarin , Seventh ICOG, Canberra,Australia, 1990.

4. $\delta^{18}O$ Evidence of a rapid temperature change across K/T boundary:signature in the Mangyshlak sediments, S.K.Bhattacharya and A. Sarkar, Seventh ICOG, Canberra, Australia, 1990.

5. Late Pleistocene palaeoclimate of the northern Indian ocean, A. Sarkar, R. Ramesh and S. K. Bhattacharya, XIII INQUA congress, Beijing, China, 1991.

6. Cretaceous-Tertiary boundary of Mangyshlak, Kazakhstan and Eocene-Oligocene boundary of western India: stable isotope profiles of two shallow marine carbonate sequences. A.Sarkar, A.K. Ray and S. K. Bhattacharya, " Global boundary events conference, Kielce, Poland, 1993.

7. Stable isotopes of Lameta sediments and associated dinosaur eggshells from Gujarat, A. Sarkar, Conf. On Geochemical event markers in Phanerozoic, Erlangen, Germany, 1994

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