

References

- Acharya, S., 2002.** The Daitari-Tomka Basin- its structural and stratigraphic evolution & genesis of associated iron ores. Indian Journal of Geology, 74, 49-81.
- Acharyya, S. K., 1993.** Greenstones from Singhbhum craton, their Archaean character, oceanic crustal affinity and tectonics. National Academy of Science of India Proceedings, 63 (A), 211–222.
- Acharyya, S.K., Gupta, A., and Orihashi, Y., 2010a.** New U–Pb zircon ages from Paleo-Mesoarchean TTG gneisses of the Singhbhum Craton, eastern India. Geochemical Journal, 44, 81–88.
- Acharyya, S.K., Gupta, A., and Orihashi, Y., 2010b.** Neoarchean–Paleoproterozoic stratigraphy of the Dhanjori basin, Singhbhum Craton, Eastern India: And recording of a few U–Pb zircon dates from its basal part. Journal of Asian Earth Sciences, 39, 527-536.
- Ali, S., Stattegger, K., Schönberg, D. G., Frank, M., Kraft, S., and Kuhnt, W., 2014.** The provenance of Cretaceous to Quaternary sediments in the Tarfaya basin, SW Morocco: Evidence from trace element geochemistry and radiogenic Nd–Sr isotopes. Journal of African Earth Sciences, 90, 64-76.
- Alvi, S.H., and Raza, M., 1991.** Nature and magma type of Jagannathpur volcanics, Singhbhum, Eastern India. Journal of the Geological Society of India, 38, 524–531.
- Andersen, T., Griffin, W.L., and Pearson, N.J., 2002.** Crustal evolution in the SW part of the Baltic Shield: the Hf isotope evidence. Journal of Petrology 43, 1725–1747.

- Anhaeusser, C.R., 2006.** A re-evaluation of Archean intracratonic terrane boundaries on the Kaapvaal Craton, South Africa: Collisional suture zones? In: Reimold, W.U. and Gibson, R. (eds) Processes on the early earth. Geological Society of America, Special Papers, 405, 315–332.
- Armstrong-Altrin, J. S., Lee, Y. I., Verma, S. P., and Ramasamy, S., 2004.** Geochemistry of sandstones from the upper Miocene Kudankulam Formation, southern India: Implications for provenance, weathering, and tectonic setting. Journal of Sedimentary Research 74, 285-297.
- Awati, A.B., and Grover, R.B., 2005.** Demand and availability of uranium resources in India. In: Recent developments in uranium exploration, production, and environmental issues. TECDOC-1463, IAEA, Vienna, 7–16.
- Balaram, V., and Rao, T. G., 2003.** Rapid determination of REEs and trace elements in geological samples by microwave acid digestion and ICP-MS. Atomic Spectroscopy, 24, 206.
- Banerjee, P.K., 1982.** Stratigraphy, petrology and geochemistry of some Precambrian basic volcanic and associated rocks of Singhbhum district, Bihar and Mayurbhanj and Keonjhar districts, Orissa. Mem. Geological Survey of India, 111, 1-54.
- Banerji, A.K., 1977.** On the Precambrian banded iron formation and manganese ores of the Singhbhum region, Eastern India. Economic Geology, 72, 90-98.
- Basu, A.R., Bandyopadhyay, P.K., Chakraborti, R., and Zou, H., 2008.** Large 3.4 Ga Algoma type BIF in the Eastern Indian Craton. Goldschmidt Conference Abstract Volume, Geochimica et Cosmochimica Acta 72, A59..
- Basu, A., Schieber, J., Patranabis-Deb, S., and Dhang, P., 2013.** Recycled Detrital Quartz Grains Are Sedimentary Rock Fragments Indicating Unconformities:

- Examples from the Chhattisgarh Supergroup, Bastar Craton, India. *Journal of Sedimentary Research*, 83, 368–376.
- Basu, A., Young, S. W., Suttner, L. J., James, W. C., and Mack, G. H., 1975.** Re-evaluation of the use of undulatory extinction and polycrystallinity in detrital quartz for provenance interpretation. *Journal of Sedimentary Petrology* 45, 873–882.
- Bekker, A., Slack, J.F., Planavsky, N., Krapez, B., Hofmann, A., Konhauser, K.O., and Rouxel, O.J., 2010.** Iron formation: the sedimentary product of a complex interplay among mantle, tectonic, oceanic, and biospheric processes. *Economic Geology*, 105, 467–508.
- Belousova, E.A., Kostitsyn, Y.A., Griffin, W.L., Begg, G.C., O'Reilly, S.Y., and Pearson, N.J., 2010.** The growth of the continental crust: Constraints from zircon Hf-isotope data. *Lithos* 119, 457–466.
- Belykh, V.I., Dunai, E.I., and Lugovaya, I. P., 2007.** Physicochemical formation conditions of banded iron formations and high-grade iron ores in the region of the Kursk magnetic anomaly, Russia; evidence from isotopic data. *Geology of Ore Deposits*, 49, 147–159.
- Beukes, N.J., Gutzmer, J., and Mukhopadhyay, J., 2003.** The geology and genesis of high-grade hematite iron ore deposits: *Transactions of the Institute of Mining and Metallurgy*, 112, B18-B25.
- Beukes, N. J., Mukhopadhyay, J., and Gutzmer, J., 2008.** Genesis of high-grade iron ores of the Archean Iron Ore Group around Noamundi, India. *Economic Geology*, 103, 365–386.
- Bhatia, M. R., 1983.** Plate tectonics and geochemical composition of sandstones. *Journal of Geology*, 91, 611–627.

- Bhatia, M. R., 1985.** Rare earth element geochemistry of Australian Paleozoic graywackes and mudrocks: Provenance and tectonic control. *Sedimentary Geology*, 45, 97-113.
- Bhatia, M.R., and Crook, K.A.W., 1986.** Trace element characteristics of graywackes and tectonic setting discrimination of sedimentary basins. *Contributions to Mineralogy and Petrology*, 92, 181-193.
- Bhatia, M. R., and Taylor, S.R., 1981.** Trace-element geochemistry and sedimentary provinces: A study from the Tasman Geosyncline, Australia. *Chemical Geology*, 33, 115-125.
- Bhatt, M. I., and Ghosh, S., 2001.** Geochemistry of the 2.51 Ga old Rampur group pelites, western Himalayas: implications for their provenance and weathering. *Precambrian Research*, 108, 1-16.
- Blichert-Toft, J., Albarède, F., Rosing, M., Frei, R., and Bridgwater, D., 1999.** The Nd and Hf isotopic evolution of the mantle through the Archean. Results from the Isua supracrustals, West Greenland, and from the Birimian terranes of West Africa. *Geochimica et Cosmochimica Acta*, 63, 3901–3914.
- Boggs, S., and Krinsley, D., 2006.** Application of Cathodoluminescence Imaging to the study of Sedimentary Rocks. Springer, Cambridge. 165pp.
- Bose, M. K., 1982.** Precambrian picritic lavas from Nomira, Keonjhar, eastern India. *Current Science*, 51, 677-682.
- Bose, M. K., 1990.** Growth of the Precambrian continental crust - a study of the Singhbhum segment in eastern Indian shield In: S.M. Naqvi (Ed.), *Precambrian continental crust and its economic resources. Development Precambrian Geology*, Elsevier, 8, 267-286.

- Bose, P. K., and Chanda, S. K., 1986.** Storm Deposits and hummocky Cross-stratification: A Geological Point View. *Quarterly Journal of the Geological, Mineralogical and Metallurgical Society of India*, 58, 53-68.
- Bowring, S.A., and Williams, I.S., 1999.** Priscoan (4.00–4.03 Ga) orthogneisses from northwestern Canada. *Contributions to Mineralogy and Petrology* 134, 3–16.
- Butler, J. R., 1954.** The geochemistry and mineralogy of rock weathering. (2) The Nordmarka area, Oslo. *Geochimia et Cosmochimia Acta*, 6, 268-281.
- Cabral, A.R., Zeh, A., Koglin, N., Seabra Gomes Jr., A. A., Viana, D.J., and Lehmann, B., 2012.** Dating the Itabira iron formation, Quadrilátero Ferrífero of Minas Gerais, Brazil, at 2.65 Ga: Depositional U–Pb age of zircon from a metavolcanic layer. *Precambrian Research*, 204–205, 40–45.
- Catuneanu, O., 2006.** Principles of Sequence Stratigraphy, Elsevier, Amsterdam, 375 pp.
- Chaki, A., 2010.** Uranium occurrences and exploration experience in India. In: Metsoc, E. K. Lan, J. W. Rawson, and E. Ozberk (Eds.), *Proceedings of the 3rd International Conference on Uranium*, 2010, Saskatoon, Canada, 1, 25–34.
- Chaki, A., Purohit, R.K., and Mamallan, R., 2010.** Low grade uranium deposits of India – a bane or boon. *Asian Nuclear Prospects 2010*, Energy procedia, Elsevier publication 2, 606 p.
- Chakrabarti, K., Ecka, N.R.R., Mishra, B., Mahendra Kumar, K., Katti, V. J., Umamaheswar, K., Parihar, P.S., Mukhopadhyay, J., and Ghosh, G., 2013.** Gold, Silver and Platinum Group of Elements mineralisation in Precambrian Uraniferous Quartz-Pebble Conglomerates of Mankarhachua area, Angul District, Odisha. *Current Science*, 105, 978-983.

- Chaudhuri, T., Wan, Y., Mazumder, R., Ma, M., and Liu, D., 2018.** Evidence of Enriched, Hadean Mantle Reservoir from 4.2–4.0 Ga zircon xenocrysts from Paleoarchean TTGs of the Singhbum Craton, Eastern India. *Scientific Reports, Science*, DOI: 10.1038/s41598-018-25494-6.
- Chu, M. F., Chung, S. L., Song, B., Liu, D. Y., O'Reilly, S. Y., Pearson, N. J., Ji, J. Q., Wen, and D. J., 2006.** Zircon U-Pb and Hf isotope constraints on the Mesozoic tectonics and crustal evolution of southern Tibet. *Geology*, 34, 745 – 748.
- Chu, N. C., Taylor, R. N., Chavagnac, V., Nesbitt, R. W., Boella, R. M., and Milton, J. A., German, C. R., Bayonb, G., and Burton, K., 2002.** Hf isotope ratio analysis using multi-collector inductively coupled plasma mass spectrometry: an evaluation of isobaric interference corrections. *Journal of Analytical Atomic Spectrometry* 17, 1567–1574.
- Condie, K. C., 1993.** Chemical composition and evolution of the upper continental crust: contrasting results from surface samples and shales. *Chemical Geology*, 104, 1–37.
- Condie, K.C., 2011.** Earth as an evolving planetary system. Elsevier, Amsterdam, 574 pp.
- Condie, K. C., and Kroner, A., 2008.** When did plate tectonics begin? Evidence from the geologic record. In: Condie, K. C., and Pease, V. (Eds.), *When Did Plate Tectonics Begin on Planet Earth?* Geological Society of America Special Paper, 440, 281–294.
- Condie, K. C., and Wronkiewicz, D. J., 1990.** The Cr/ Th ratio in Precambrian pelites from the Kaapvaal craton as an index of craton evolution. *Earth and Planetary Science Letters*, 97, 256–267.

- Conliffe, J., 2015.** Geological setting and genesis of high-grade iron-ore deposits in the eastern Labrador Trough. In Current Research. Government of Newfoundland and Labrador. Department of Natural Resources, US Geological Survey, Report 15-1, 1-25.
- Cox, R., and Lowe, D.R., 1996.** Quantification of the effects of secondary matrix on the analysis of sandstone composition, and a petrographic-chemical technique for retrieving original framework grain modes of altered sandstones. *Journal of Sedimentary Research*, 66, 548-558.
- Crook, K. A. W., 1974.** Lithogenesis and Geotectonics: the significance of compositional variation in Flysch Arenites (graywackes). *Society of Economic Paleontologists and Mineralogists, Special Publication* 19, 304-310.
- Cullers, R. L., 1994.** The controls on the major and trace element variation of shales, siltstones, and sandstones of Pennsylvanian-Permian age from uplifted continental blocks in Colorado to platform in Kansas, USA. *Geochimica et Cosmochimica Acta*, 58, 4955-4972.
- Cullers, R. L., Basu, A., and Suttner, L. J., 1988.** Geochemical signature of provenance in sand-size material in soils and stream sediments near the Tobacco Root Batholith, Montana, USA. *Chemical Geology*, 70, 335-348.
- Cullers, R. L., and Podkorytov, V. N., 2000.** Geochemistry of the Mesoproterozoic Lakhanda shales in southeastern Yakutia, Russia: implications for mineralogical and provenance control, and recycling. *Precambrian Research*, 104, 77-93.
- Cullers, R., and Podkorytov, V., 2002.** The source and origin of terrigenous sedimentary rocks in the Mesoproterozoic Ui Group, southeastern Russia. *Precambrian Research*, 117, 157-183.

- Cuney, M., 2010.** Evolution of Uranium Fractionation Processes through Time: Driving the Secular Variation of Uranium Deposit Types. *Economic Geology*, 105, 553–569.
- Cuney, M., 2014.** Felsic magmatism and uranium deposits. *Bulletin Society géologique de France*. 185, 75-92.
- Dahlkamp, F.J., 1989.** Classification scheme of uranium deposits. In: Metallogenesis of uranium deposits. IAEA, Vienna, 1–31.
- Dalrymple, R.W., Knight, R.J., Zaitlin, B.A., and Middleton, G.V., 1990.** Dynamics and facies model of a macrotidal sand bar complex. *Sedimentology*, 35, 577-612.
- Das, K., Bose, S., and Ghosh, G., 2017.** The Neoarchean-Paleoproterozoic basin development and growth of the Singhbhum Craton, eastern India and its global implications: Insights from detrital zircon U-Pb data. *Precambrian Research*, 298, 123–145.
- Dasgupta, S., Sengupta, P., Fukuoka, M., and Chakraborti, S., 1992.** Dehydration melting, fluid buffering and decompressional P-T path in a granulite complex from the Eastern Ghats, India. *Journal of Metamorphic Geology*, 10, 777–788.
- De, S., Mukhopadhyay, J., and Rosiere, C. A., 2017.** The Juvenile Lu-Hf crustal signature from the detrital zircons from Mesoarchean Keonjhar Quartzite: Implications for the early Archean continental crust and geodynamics. Goldschmidt conference 2017, Paris, Abstracts, 856.
- De, S., Mukhopadhyay, J., Rosiere, C. A., and Ghosh, S., 2016.** SEM-CL fabric analysis of quartz framework population from the Mesoarchean Keonjhar Quartzite from Singhbhum Craton, Eastern India – Implications for the

- understanding of upper continental crust. In: Mazumder R. and Eriksson P. (Eds.), *Sediment Provenance*, Elsevier, 487-507.
- de Raaf, J.F.M., and Boersma, J.R., 1971.** Tidal deposits and their sedimentary structures. *Geologie en Mijnbouw*, 50, 479-504.
- de Ronde, C.E.J., and de Wit, M.J., 1994.** Tectonic history of the Barberton Greenstone Belt, South Africa: 490 million years of Archean crustal evolution. *Tectonics*, 13, 983-1005.
- de Wit, M.J., Roering, C., Hart, R.J., Armstrong, R.A., de Ronde, C.E.J., Green, R.W.E., Tredoux, M., Peberdy, E., and Hart, R.A., 1992.** Formation of an Archean continent. *Nature*, 357, 553-562.
- Dey, S., Topno, A., Liu, Y., and Zong., K., 2017.** Generation and evolution of Palaeoarchaean continental crust in the central part of the Singhbum craton, eastern India. *Precambrian Research*, 298, 268-291.
- Dhuime, B., Hawkesworth, C.J., Cawood, P., and Storey, C.D., 2012.** A change in the geodynamics of continental growth 3 billion years age. *Science* 335, 1334–1336.
- Dickinson, W. R., 1970.** Interpreting detrital modes of graywacke and arkose. *Journal of Sedimentary Petrology*, 40, 695-707.
- Dickinson, W. R., 1985.** Interpreting provenance relations from detrital modes of sandstones. In: Zuffa, G.G., (Ed.), *Provenance of Arenites*. Reidel, Dordrecht, 333–361 pp.
- Dickinson, W. R., Beard, L.S., and Brakenridge, G. R., 1983.** Provenance of north America Phenerozoic sandstone in relation to tectonic setting. *Geological Society of America Bulletin*, 94, 222-235.

- Dickinson, W. R., and Suczek, C. A. 1979.** Plate tectonics and sandstone compositions. American Association of Petroleum Geology Bulletin, 63, 2164-2182.
- Dickinson, W. W., and Milliken, K. L., 1995.** The diagenetic role of brittle deformation in compaction and pressure solution, Etjo Sandstone, Nambia. Journal of Geology, 103, 339-47.
- Dunn, J. A., 1929.** Geology of Northern Singhbhum including parts of Ranchi and Manbhum Dist. Mem. Geol. Surv. India, 54.
- Dunn, J. A., 1940.** The stratigraphy of south Singhbhum. Mem. Geol. Surv. Ind., 63, pt. 3.
- Dunn, J. A., and Dey, A.K., 1942.** The geology and petrology of eastern Singhbhum and surrounding areas. Mem. Geological Survey of India, 69, 281-450.
- Eriksson, K. A., 1978.** Alluvial and destructive beach facies from the Archean Moodies Group, Barberton Mountain Land, South Africa and Swaziland. In: Miall, A.D. (Ed.), Fluvial Sedimentology. Memoir Canadian Society of Petroleum Geologists, 5, 287-312.
- Eriksson, K.A., 1979.** Marginal marine depositional processes from the Archean Moddies Group, Barberton Mountain land, South Africa: Evidence and significance. Precambrian Research, 8, 153-182.
- Farina, F., Albert, C., and Lana, C., 2015.** The Neoarchean transition between medium and high-K granitoids: clues from the Southern Sao Francisco Craton (Brazil). Precambrian Research, 266, 375-394.
- Fedo, C. M., and Cooper, J. D., 1990.** Braided alluvial to marine transition: the basal Lower Cambrian Wood Canyon Formation, southern Marble Mountains, Mojave Desert, California. Journal of Sedimentary Petrology, 60, 220-234.

- Fedo, C. M., and Eriksson, K. A., 1996.** Stratigraphic framework of the 3 Ga Buhwa greenstone belt: a unique stable shelf succession in the Zimbabwe Archean craton. *Precambrian Research*, 11, 161–178.
- Fedo, C. M., Nesbitt, H. W., and Young, G. M., 1995.** Unravelling the effects of potassium metasomatism in sedimentary rocks and paleosol, with implications for paleoweathering conditions and provenance. *Geology*, 23, 921–924.
- Figueiredo e Silva, R. C., Lobato, L. M., Rosière, and C. A., Hagemann, S., 2011.** Petrographic and geochemical studies at giant Serra Norte iron ore deposits in the Carajás mineral province, Pará State, Brazil. *Geonomos*, 19, 198–223.
- Force, E. R., 1983.** Geology of Nimba County, Liberia. US Geological Survey Bulletin, Washington, 27pp.
- Gerdes, A., and Zeh, A., 2006.** Combined U–Pb and Hf isotope LA-(MC)-ICP-MS analyses of detrital zircons: comparison with SHRIMP and new constraints for the provenance and age of an Armorican metasediment in Central Germany. *Earth and Planetary Sciences Letters*, 249, 47–61.
- Ghosh, B., Das, P., Sarkar, D., Ghosh, G., Mukhopadhyay, J., and Ando, J-A., 2018.** Coalescing microstructure and fabric transitions with AMS data in deformed limestone: Implications on deformation kinematics, *Journal of Structural Geology*, 114, 294–309.
- Ghosh, D.K., Sarkar, S.N., Saha, A.K., and Ray, S.L., 1996.** New insights on the early Archean crustal evolution in eastern Indi: re-evaluation of Pb–Pb, Sm–Nd and Rb–Sr geochemistry. *Indian Minerals*, 50, 175–188.
- Ghosh, G., Ghosh, B., and Mukhopadhyay, J., 2015.** Palaeoarchaean–Mesoproterozoic sedimentation and tectonics along the west-northwestern margin of the Singhbhum Granite body, eastern India: a synthesis. In:

- Mazumder, R. and Eriksson, P. G. (Eds), Precambrian Basins of India: Stratigraphic and Tectonic Context. Geological Society, London, Memoirs, 43, 121-138.
- Ghosh, G., Kumari, S., Patil, S.K., Mukhopadhyay, J., and Ray, A., 2010.** Superposed deformation fabrics in the Precambrian metabasic rocks of the Iron Ore Group, Singhbhum craton, Eastern India: evidences from anisotropy of magnetic susceptibility studies. *Journal of Structural Geology*, 32, 249–261.
- Ghosh, G., and Mukhopadhyay, J., 2007.** Reappraisal of the ‘Horse-Shoe Syncline’ structure of the Archaean western Iron Ore Group, Singhbhum Craton, eastern India: Implications for the Exploration of BIF-Hosted Iron Ore Deposits. *Gondwana Research*, 12, 525-532.
- Ghosh, S., De, S., and Mukhopadhyay J., 2016.** Provenance of >2.8 Ga Keonjhar Quartzite, Singhbhum Craton, Eastern India: Implications for the Nature of Mesoarchean Upper Crust and Geodynamics. *Journal of Geology*, 124, 331-351.
- Ghosh, S.K., and Chatterjee, B.K., 1990.** Palaeoenvironmental reconstruction of the early Proterozoic Kolhan Siliciclastic rocks, Keonjhar district, Orissa, India. *Journal of Geological Society India*, 35, 273-286.
- Ghosh, S. K., and Chatterjee, B. K., 1994.** Depositional mechanisms as revealed from grain-size measures of the palaeoproterozoic kolhan siliciclastics, Keonjhar District, Orissa, India. *Sedimentary Geology*, 83, 181-196.
- Gonçalves, G. O., Lana, C., Scholz, R., Buick, I. S., Gerdes, A., Kamo, S.L., Corfu, F., Marinho, M. M., Chaves, A. O., Valeriano, C., and Nalini, H. A. Jr. 2016.** An assessment of monazite from the Itambé pegmatite district for use as U–Pb isotope reference material for microanalysis and implications for the origin of the “Moacyr” monazite. *Chemical Geology*, 424, 30-50.

- Goodwin, A.M., 1996.** Principles of Precambrian Geology, Elsevier, 327pp.
- Goswami, J.N., Mishra, S., Wiedenbeck, M., Ray, S.L., and Saha, A.K., 1995.** 3.55 Ga old zircon from Singhbhum-Orissa iron ore Craton. Eastern India. Current Science, 69, 1008–1011.
- Gray, D. J., and Benton, M.J., 1982.** Multidirectional Palaeocurrents as Indicators of Shelf Stonn Beds. In: Einsele, G. and Seilacher, A. (Eds.), Cyclic and Event Stratification. Springer Verlag, Berlin, Heidelberg, New York, 353 pp.
- Griffin, W.L.; Belousova, E.A.; Shee, S.R.; Pearson, N.J.; and O'Reilly, S.Y. 2004.** Archean crustal evolution in the northern Yilgarn Craton: U-Pb and Hf-isotope evidence from detrital zircons. Precambrian Research, 131, 231-282.
- Griffin, W.L., Pearson, N.J., Belousova, E., Jackson, S.E., van Achterbergh, E., and O'Reilly, S., 2000.** The Hf isotope composition of cratonic mantle: LA-MC-ICPMS analysis of zircon megacrysts in kimberlites. Geochimica et Cosmochimica Acta, 64, 133– 147.
- Griffin, W.L., Wang, X., Jackson, S.E., Pearson, N.J., O'Reilly, S.Y., Xu, X., and Zhou, X., 2002.** Zircon chemistry and magma mixing, SE China: In-situ analysis of Hf isotopes, Tonglu and Pingtan igneous complexes. Lithos, 61, 237–269.
- Gupta, A., Basu, A., and Singh, S. K., 1985.** Stratigraphy and petrochemistry of Dhanjori greenstone belt eastern India. Quarterly Journal of the Geological Mineralogical and Metallurgical Society of India, 57, 248– 263.
- Hagemann, S., Angerer, T., Duuring, P., Rosière, C., Figueiredo e Silva, R., Lobato, L., Hensler, Ana-Sophie and Walde, D.H.G., 2016.** BIF-hosted iron mineral system: A review. Ore Geology Reviews, 317-359.

- Hagemann, S., Rosière, C.A., Gutzmer, J. and Beukes, N.J. (Ed.), 2008.** Banded iron formation-related high-grade iron ore. *Reviews in Economic Geology* 15, Soc. Econ. Geol., 414pp.
- Hanchar, J.M., and Miller, C.F., 1993.** Zircon zonation patterns as revealed by cathodoluminescence and backscattered electron images— implications for interpretation of complex crustal histories. *Chemical Geology*, 110, 1–13.
- Harmsworth, R.A., Kneeshaw, M., Morris, R.C., Robinson, C.J., and Shrivastava, P.K., 1990.** BIF derived iron ores of the Hamersley Province. In: Hugh, F.E. (Ed.), *Geology of the Mineral Deposits of Australia and Papua New Guinea*, Monograph 14: Melbourne, Australian Institute of Mining and Metallurgy, 617–642.
- Harrison, T.M., Blichert-Toft, J., Muller, W., Albarède, F., Holden, P., and Mojzsis, S.J., 2005.** Heterogeneous Hadean hafnium: Evidence of continental crust at 4.4 to 4.5 Ga. *Science*, 310, 1947–1950.
- Hawkesworth, C.J., Cawood, P.A., Kemp, T., Storey, C.D., and Dhuime, B., 2009.** A matter of preservation. *Science*, 323, 49–50.
- Hawkesworth, C.J., Dhuime, B., Pietranik, A.B., Cawood, P.A., Kemp, A.I.S., and Storey, C.D., 2010.** The generation and evolution of the continental crust. *Journal of the Geological Society, London* 167, 229–248.
- Hawkesworth, C.J., and Kemp, A.I.S. 2006a.** The differentiation and rates of generation of the continental crust. *Chemical Geology*, 226, 134–143.
- Hawkesworth, C.J., and Kemp, A.I.S., 2006b.** Evolution of the continental crust. *Nature*, 443, 811–817.
- Herzberg, C., 2011.** Identification of source lithology in the Hawaiian and Canary Islands: implications for origins. *Journal of Petrology*, 52, 113–146.

- Herzberg, C., Cabral, R., Jackson, M., Vidito, C., Day, J., and Hauri, E., 2014.**
 Phantom Archean crust in Mangaia hotspot lavas and the meaning of heterogeneous mantle. *Earth and Planetary Science Letters*, 396, 97–106.
- Heubeck, C., and Lowe, D. R., 1994.** Depositional and tectonic setting of the Archean Moodies Group, Barberton Greenstone Belt, South Africa. *Precambrian Research*, 68, 257–290.
- Hill, P.R., Meule ' , S. and Longue 'pe'e, H., 2003.** Combined-flow processes and sedimentary structures on the shoreface of the wave-dominated Grande-rivière 're-de-la-baleine delta. *Journal of Sedimentary Research*, 73, 217–226.
- Hofmann, A. and Mazumder, R. 2015.** A review of the current status of the Older Metamorphic Group and Older Metamorphic Tonalite Gneiss: insights into the Palaeoarchaean history of the Singhbhum craton, India. In: Mazumder, R. and Eriksson, P. G. (Eds) 2015. *Precambrian Basins of India: Stratigraphic and Tectonic Context*. Geological Society, London, Memoirs, 43, 103-108.
- Hoffmann, J.E., Kröner, A., Hegner, E., Viehmann, S., Xie, H., Iaccheri, L.M., Schneider, K.P., Hofmann, A., Wong, J., Geng, H., and Yang, J., 2016.** Source composition, fractional crystallization and magma mixing processes in the 3.48-3.43 Ga Tsawela tonalite suite (Ancient Gneiss Complex, Swaziland) - Implications for Palaeoarchaean geodynamics. *Precambrian Research*, 276, 43–66.
- Hoffmann, J.E., Nagel, T.J., Munker, C., Naeraa, T., and Rosing, M.T., 2014.** Constraining the process of Eoarchean TTG formation in the Itsaq gneiss complex, southern West Greenland. *Earth and Planetary Science Letters*, 388, 374–386.

- Holland, H., and Gottfried, D., 1955.** The effect of nuclear radiation on the structure of zircon. *Acta Crystallogr.*, 8, 291–300.
- Hoskin, P.W.O., 2000.** Patterns of chaos: fractal statistics and the oscillatory chemistry of zircon. *Geochim et Cosmochim Acta*, 64, 1905–1923.
- IAEA, 2013.** Annual Report, International Atomic Energy, Vienna, 117 pp.
- Iizuka, T., Campbell, I.H., Allen, C.M., Gill, J.B., Maruyama, S., and Makoka, F., 2013.** Evolution of the African continental crust as recorded by U–Pb, Lu–Hf and O isotopes in detrital zircons from modern rivers. *Geochimica et Cosmochimica Acta*, 107, 96–120.
- Iizuka, T., Komiya, T., Johnson, S.P., Kon, Y., Maruyama, S., and Hirata, T., 2009.** Reworking of Hadean crust in the Acasta gneisses, northwestern Canada: Evidence from in-situ Lu–Hf isotope analysis of zircon. *Chemical Geology*, 259, 230–239.
- Iizuka, T., Komiya, T., Rino, S., Maruyama, S., and Hirata, T., 2010.** Detrital zircon evidence for Hf isotopic evolution of granitoid crust and continental growth. *Geochimica et Cosmochimica Acta*, 74, 2450–2472.
- Iizuka, T., Yamaguchi, T., Hibiya, Y., and Amelin, Y., 2015.** Meteorite zircon constraints on the bulk Lu–Hf isotope composition and early differentiation of the Earth. *Proceedings of the National Academy of Sciences*, 112, 5331–5336.
- Ingersoll, R. V., 1983.** Petrofacies and provenance of late Mesozoic forearc basin, northern and central California. *Bulletin Am. Assoc. Petroleum Geologists*, 67, 1125–1142.
- Ingersoll, R.V., Bullard, T.F., Ford, R.L., Grimm, J.P., Pickle, J.D. and Sares, S.W., 1984.** The effect of grain size on detrital modes: a test of the Gazzi-

- Dickinson point-counting method. *Journal of Sedimentary Petrology*, 54, 103-116.
- Ingersoll, R.V, and Suczek, C.A., 1979.** Petrology and provenance of Neogeue sand from Nicobar and bengal fans, DSDP sites 211 and 218. *Journal of Sedimentary Petrology*, 49, 1217- 1228.
- Iyengar, S.V.P., and Alwar, M. A., 1965.** The Dhanjori eugeosyncline and its bearing on the stratigraphy of Singhbhum, Keonjhar and Mayurbhanj districts. D.N. Wadia Commemorative Volume. Mineralogical Geological and Metallurgical Institute of India, 138-162.
- Iyengar, S.V.P., and Banerjee, S., 1964.** Magmatic phases associated with Precambrian tectonics of Mayurbhanj district, Orissa, India. Report on 22nd International Geological Congress, 10, 515-538.
- Iyengar, S.V.P., and Murthy, Y.G.K., 1982.** The Evolution of the Archaean-Proterozoic Crust in parts of Bihar and Orissa, Eastern India. Record of Geological Survey of India, 112(3), 1-5.
- Jackson, S.E., Pearson, N.J., Griffin, W.L., and Belousova, E.A., 2004.** The application of laser ablation-inductively coupled plasma-mass spectrometry to in-situ U-Pb zircon geochronology: *Chemical Geology*, 211, 47–69.
- Jones, H. C. 1934.** The iron ores deposits of Bihar and Orissa. Geological Survey of India Memoir, 63. 167-302
- Johnson, M.J., and Basu, A., 1993.** Processes Controlling the Composition of Clastic Sediments. *Geological Society of America Special Paper* 284, 342pp.
- Kaczmarek, M.A., Reddy, S.M., Nutman, A.P., Friend, C.R., and Bennet, V.C., 2016.** Earth's oldest mantle fabrics indicate Eoarchaeon subduction. *Nature Communication*, 7, 10665.

- Kamber, B.S., 2015.** The evolving nature of terrestrial crust from the Hadean, through the Archaean, into the Proterozoic. *Precambrian Research*, 258, 48–82.
- Kamo, S., and Davis, D.W., 1994.** Reassessment of Archean crustal development in the Barberton Mountain Land, South Africa, based on U-Pb dating. *Tectonics*, 13, 167–192.
- Kaur, P., Zeh, A., and Chaudhri, N., 2014.** Characterisation and U–Pb–Hf isotope record of the 3.55 Ga felsic crust from the Bundelkhand craton, northern India. *Precambrian Research*, 255, 236-244.
- Klein, C., and Ladeira, E. A., 2000.** Geochemistry and Petrology of some Proterozoic banded iron-formations of the Quadrilatero Ferrifero, Minas Gerais, Brazil. *Economic Geology*, 95, 405–428.
- Klötzli, U., Klötzli, E., Günes, Z., and Košler, J., 2009.** External accuracy of laser ablation U-Pb zircon dating: results from a test using five different reference zircons. *Geostand Geoanal Res.*, 33, 5–15.
- Koschek, G., 1993.** Origin and Significance of the SEM Cathodoluminescence from Zircon. *Journal of Microscopy*, 171: 223-232.
- Krinsley, D. H., and Tovey, N.K., 1978.** Cathodoluminescence in quartz sand grains. In: Johari, O., (Ed.) *Scanning Electron Microscopy*. SEM Inc., AMF O’Hare, Illinois, 887-894.
- Krishnan, M.S., 1937.** The Geology of Gangpur State. Eastern States. Memoir of Geological Survey of India, 71,181.
- Kröner, A., Cooray, P.G., and Vitanage, P.W., 1991.** Lithotectonic subdivision of the Precambrian basement in Sri Lanka. In: Kröner, A. (Ed.) *The Crystalline Crust of Sri Lanka. Part I, Summary of Research of the German – Sri Lanka*

- Consortium. Geological Survey Department of Sri Lanka, Professional Paper 5, 5–21.
- Kröner, A., Hoffmann, J.E., Xie, H., Münker, C., Hegner, E., Wan, Y., Hofmann, A., Liu, D., and Yang, J., 2014.** Generation of early Archaean grey gneisses through crustal melting of older crust in the eastern Kaapvaal craton, southern Africa. *Precambrian Research*, 255, 833–846.
- Kuenen, P. H., 1960.** Experimental abrasion, IV. Eolian action. *Journal of Geology*, 68, 427–449.
- Laubach, S. E., 1997.** A method to detect natural fracture strike in sandstones. *Bulletin American Association of Petroleum Geologists*, 81, 604–23.
- Lauri, L.S., Andersen, T., Hölttä, P., Huhma, H., and Graham, S., 2011.** Evolution of the Archaean Karelian Province in the Fennoscandian Shield in the light of U–Pb zircon ages and Sm–Nd and Lu–Hf isotope systematics. *Journal of the Geological Society* 168, 201–218.
- Lowe, D.R., 1979.** Sediment gravity flows: their classification and some problems of application to natural flows and deposits. *Soc. Econ. Paleontol. Mineral., Spec. Publ.*, 27, 75–82.
- Lowe, D. R., 1994.** Accretionary history of the Archean Barberton Greenstone Belt (3.55–3.22 Ga), Southern Africa. *Geology*, 22, 1099–1102.
- Lowe, D.R., and Byerly, G.R., 1999.** Stratigraphy of the west-central part of the Barberton Greenstone Belt, South Africa. In: Lowe, D. R., and Byerly, G. R., (Eds.), *Geologic Evolution of the Barberton Greenstone Belt, South Africa*, Special Paper 329, Geological Society of America, 1–36.
- Lyons, T. W., Reinhard C. T., and Planavsky, N. J., 2014.** The rise of oxygen in Earth's early ocean and atmosphere. *Nature*, 506, 307–315.

- Mahadevan, T.M., 1988.** Characteristics and genesis of the Singhbhum uranium province, India. In: Recognition of Uranium Provinces, IAEA, Vienna, 337–370.
- Makowitz, A., and Milliken, K. L., 2003.** Quantification of brittle deformation in burial compaction, Frio and Mount Simon Formation sandstones. *Journal of Sedimentary Research*, 73, 1007–21.
- Manikyamba, C., Ray, J., Ganguly, S., Singh, M. R., Santosh, M., Saha, A., and Satyanarayanan, M., 2015.** Boninitic metavolcanic rocks and island arc tholeiites from the Older Metamorphic Group (OMG) of Singhbhum Craton, eastern India: Geochemical evidence for Archean subduction processes. *Precambrian Research*, 271, 138–159.
- Marshall, D. J., 1988.** Cathodoluminescence of geologic materials: Boston, Massachusetts, Unwin Hyman, 146pp.
- Mason, B., and Moore, C. B., 1982.** Principles of Geochemistry. John Wiley and Sons, New York, 340pp.
- Matter, A., and Ramseyer, K., 1985.** Cathodoluminescence petrography as a tool for sedimentary provenance studies of sandstones. In: Zuffa, G.G., (Ed.), *Provenance of Arenites*. Reidel, Dordrecht, 191–211.
- Mazumder, S. K., 1996.** Precambrian geology of peninsular eastern India. *Indian Minerals*, 50, 139-174.
- Mazumdar, R., Van Loon, A. J., Mallik, L., Reddy, S. M., Arima, M., Altermann, W., Eriksson, P. G., and De, S., 2012.** Mesoarchaean-Palaeoproterozoic Stratigraphic record of the Singhbhum crustal province: a synthesis. *Palaeoproterozoic of India*. Geological Society, London, Special Publications 365, 31–49.

- McDonough, W.F., and Sun, S.S., 1995.** The Composition of the Earth; Chemical Geology, 120, 223-253.
- McLennan, S. M., Hemming, S., McDaniel, D. K., and Hanson, G. N., 1993.** Geochemical approaches to sedimentation, provenance and tectonics. In: Johnsson, M. J., and Basu, A., (Eds.), Processes controlling the composition of clastic sediments. Geological Society of America, Special Paper 284, 21-40.
- McLennan, S. M., and Taylor, S. R., 1991.** Sedimentary rocks and crustal evolution: tectonic setting and secular trends. *The Journal of Geology* 99, 1-21.
- Miall, A. D., 1978.** Lithofacies types and vertical profile models of braided river deposits, a summary. In: Miall A. D. (Ed.), Fluvial Sedimentology. Memoir Canadian Society of Petroleum Geologist, 5, 597-604.
- Miall. A. D., 1985.** Architectural-element analysis: a new method of facies analysis applied to fluvial deposits: *Earth-Science Reviews*, 22, 261-308.
- Miall, A. D., 1997.** The geology of stratigraphic sequences, First edition: Springer-Verlag, Berlin, 433 pp.
- Miall. A. D., 2016.** Stratigraphy: A Modern Synthesis. Springer, 454 pp.
- Middleton, G. V., and Hampton, M. A., 1976.** Subaqueous sediment transport and deposition by sediment gravity flows. In; Stanley, D. J., and Swift, D. J. P., (Eds.), Marine sediment transport and environmental management; Wiley, New York, p. 197-218.
- Milliken, K. L., and Laubach, S. E., 2000.** Brittle deformation in sandstone diagenesis revealed by scanned cathodoluminescence imaging with application to characterization of fractured reservoirs. In: Pagel, M., Barbin, V., P Blanc, P., Ohnenstetter, D., (Eds.), Cathodoluminescence in Geosciences. Springer Verlag, Berlin, 225–43.

- Misra, S., 2006.** Precambrian Chronostratigraphic Growth of Singhbhum-Orissa Craton, Eastern Indian Shield: An Alternative Model. *Journal of Geological Society of India*, 67, 356-378.
- Mishra, S., Deomurari, M.P., Wiedenbeck, M., Goswami, J.N., Ray, S., and Saha, A.K., 1999.** 207Pb/206Pb zircon ages and the evolution of the Singhbhum Craton, eastern India: an ion microprobe study. *Precambrian Research*, 93, 139–151.
- Mishra, S., and Johnson, T., 2005.** Geochronological Constraints on Evolution of Singhbhum Mobile Belt and Associated Basic Volcanics of Eastern Indian Shield. *Precambrian Research*, 8, 129-142.
- Misra, S., Moitra, S., Bhattacharya S., and Sivaraman T.V., 2000.** Archean granitoids at the contact of Eastern Ghats Granulite Belt and Singhbhum–Orissa Craton, in Bhuban–Rengali Sector, Orissa, India. *Gondwana Research*, 3, 205–213.
- Mohanty, M., Panda, P.K., and Mohanty, B.K., 2008.** Petrogenesis of Pal Laharha Granitic gneiss in Eastern Indian Craton: Evidence from field relations and petrochemistry. *Journal of Geological Society of India*, 72, 415-431.
- Mishra, B., Pande, D., Gogoi, J., Kumar, A., Ramesh Babu, P.V., and Parihar, P.S., 2008.** Quartz-Pebble Conglomerate Type Uranium Mineralization in Balia-Rankia Area of Daitari-Tomka basin, Jaipur district, Orissa, *Exploration And Research for Atomic Minerals*, 18, 1-14.
- Mondal, S. K., Frei, R., and Ripley E.M., 2007.** Os isotope systematics of Mesoarchean chromitite-PGE deposits in the Singhbhum Craton (India): Implications for the evolution of lithospheric mantle. *Chemical Geology*, 244, 391-408.

- Mondal, S. K., Ripley E.M., Li, E. M., and Frei, R., 2006.** The genesis of the Archean chromitites from the Nausahi and Sukinda massifs in the Singhbhum craton, India, *Precambrian Research*, 148, 45-66.
- Moorbath, S., and Taylor, P.N., 1988.** Early Precambrian crustal evolution in eastern India: the age of the Singhbhum granite and included remnants of older gneiss. *Journal of the Geological Society of India*, 31, 82-84.
- Moorbath, S., Taylor, P.N., and Jones, N.W., 1986.** Dating the oldest terrestrial rocks - fact and fiction. *Chemical Geology*, 57, 63-86.
- Moreira, H., Lana, C., and Nalini, Jr., H.N., 2016.** The detrital zircon record of an Archaean convergent basin in the Southern São Francisco Craton, Brazil. *Precambrian Research*, 275, 84–99.
- Morris, R.C., 1985.** Genesis of iron ore in banded iron-formation by supergene and supergene-metamorphic processes; a conceptual model. In: Wolf, K.H. (Ed.), *Handbook of Strata-bound and Stratiform Ore Deposits*, 13. Elsevier Science Publications, Amsterdam, 73–235.
- Morton, R. D., 1978.** The identification of uraniferous minerals. In short course in uranium deposits: their mineralogy and origin. Min. Ass. Can., Toronto, 141–183.
- Mukhopadhyay, D., 2001.** The Archean nucleus of Singhbhum: the present state of knowledge. *Gondwana Research*, 4, 307–318.
- Mukhopadhyay, J., Beukes, N.J., Armstrong, R.A., Zimmermann, U., Ghosh, G., and Medda, R.A., 2008a.** Dating the Oldest Greenstone in India: A 3.51-Ga Precise U-Pb SHRIMP Zircon Age for Dacitic Lava of the Southern Iron Ore Group, Singhbhum Craton. *The Journal of Geology*, 116, 449–461.

- Mukhopadhyay, J., Crowley, Q., Ghosh, G., Ghosh, S., Chakrabarti, K., Mishra, B., and Bose, S., 2013.** A Mesoarchean Paleosol from eastern India—the second oldest paleosol on Earth. Goldschmidt Conference, 2013, Florence, Italy, abstract volume of Mineralogical Magazine, 77(5), 1802.
- Mukhopadhyay, J., Crowley, Q., Ghosh, S., Ghosh, G., Chakrabarti, K., Mishra, B., Heron, K., and Bose, S., 2014.** Oxygenation of the Archean atmosphere: New paleosol constraints from eastern India. Geology, 42, 923-926.
- Mukhopadhyay, J., Ghosh, G., Beukes, N. J., and Gutzmer, J., 2007.** Precambrian colluvial iron ores in the Singhbum craton: Implications for origin, age of BIF-hosted high-grade iron ores and stratigraphy of the Iron ore Group, Journal Geological Society of India, 70, 34-42.
- Mukhopadhyay, J., Ghosh, G., Nandi, A. K., and Chaudhuri, A. K., 2006.** Depositional setting of the Kolhan Group: its implications for the development of a Meso to Neoproterozoic deep-water basin on the South Indian craton. South African Journal of Geology, 109, 183–192.
- Mukhopadhyay, J., Ghosh, G., Zimmerman, U., Guho, S. and Mukherjee, T., 2012.** A 3.51 Ga bimodal volcanics-BIF-ultramafic succession from Singhbum craton: implications for Paleoarchean geodynamic processes from the oldest greenstone succession of the Indian subcontinent, Geological Journal, 47, 284-311.
- Mukhopadhyay, J., Gutzmer, J., Beukes, J., and Bhattacharya, H.N., 2008b.** Geology and genesis of the major banded iron formation – Hosted high-grade iron ore deposits of India. In: Hagemann S, Rosiere C, Gutzmer J, and Beukes N.J. (Eds.), Banded Iron Formation-Related High-Grade Iron Ore, Reviews in Economic Geology 15, 291–316.

- Mukhopadhyay, J., Gutzmer, J., Beukes, N.J., and Hayashi, K.I., 2008c.** Stratabound magnetite deposits from the eastern outcrop belt of Archaean Iron Ore Group, Singhbhum Craton, India. *Appl. Earth Sci.* 117, 175–186.
- Mukhopadhyay, J., Mishra, B., Chakraborti, K., De, S., and Ghosh, G., 2016.** Uraniferous paleoplacers of the Mesoarchean Mahagiri Quartzite, Singhbhum craton, India: Depositional controls, nature and source of >3.0 Ga detrital uraninites. *Ore Geology Reviews*, 72, 1290-1306.
- Muller, A., 2000.** Cathodoluminescence and characterisation of defect structures in quartz with applications to the study of granitic rocks. Doctoral dissertation, Georg-August-Universitatzu Gottingen, 229pp.
- Müller, S.G., Krapez, B., Barley, M.E., and Fletcher, I.R., 2005.** Giant iron-ore deposits of the Hamersley province related to the breakup of Paleoproterozoic Australia: New insights from in situ SHRIMP dating of baddeleyite from mafic intrusions: *Geology*, 33, p. 577–580.
- Mueller, W. U., and Corcoran, P. L., 1998.** Late-orogenic basins in the Archean Superior Province, Canada: characteristics and inferences. *Sedimentary Geology*, 120, 177–203.
- Murphy, M. A., and Salvador, A., 1998.** International Subcommission on Stratigraphic Classification of IUGS International Commission on Stratigraphy. *Episodes*, 22, 255-272.
- Naqvi, S.M., 2005.** Geology and Evolution of the Indian Plate (from Hadean to Holocene — 4 Ga to 4 ka). Capital Publishing Company, New Delhi, 1- 450.
- Naqvi, S. M., and Rogers, J. J. W., 1987.** Precambrian Geology of India. Oxford University Press, New York, 223pp.

- Nebel, O., Nebel-Jacobsen, Y., Mezger, K., and Berndt, J., 2007.** Initial Hf isotope compositions in magmatic zircon from early Proterozoic rocks from the Gawler Craton, Australia: A test for zircon model ages. *Chemical Geology*, 241, 23–37.
- Nelson, D. R., Bhattacharya, H. N., Misra, S., Dasgupta, N. and Altermann, W., 2007.** New SHRIMP U–Pb zircon dates from the Singhbum craton, Jharkhand–Orissa region, India. Abstract. In: Banerjee, S. (Ed.) International Conference on Precambrian Sedimentation and Tectonics. Indian Institute of Technology, Bombay. 47.
- Nelson, D. R., Bhattacharya, H. N., Thorn, E. R., and Altermann, W., 2014.** Geochemical and ion-microprobe U–Pb zircon constraints on the Archaean evolution of Singhbum Craton, eastern India. *Precambrian Research*, 255, 412–432.
- Nemec, W., and Steel, R. J., 1984.** Alluvial and coastal conglomerates: their significant features and some comments on gravelly mass-flow deposits. In: Koster, E. H., and Steel, R. J., (Eds.), *Sedimentology of gravels and conglomerates*. Memoir of Canadian Society of Petroleum Geologists, 10, 1-31.
- Nesbitt, H. W., 2003.** Petrogenesis of siliciclastic sediments and sedimentary rocks. In Lentz, R. D., ed. *Geochemistry of Sediments and Sedimentary Rocks: Evolutionary considerations to mineral-deposit-forming environments*. Geological Association of Canada, GEO Text 4:39–51.
- Nesbitt, H. W., Fedo, C. M., and Young, G. M., 1997.** Quartz and Feldspar stability, steady and non-steady-state weathering, and petrogenesis of siliciclastic sands and muds. *Journal of Geology*, 105, 173-191.
- Nesbitt, H. W., and Young, G. M. 1982.** Early Proterozoic climates and plate motions inferred from major element chemistry of lutites. *Nature*, 299, 715-717.

- Nesbitt, H. W., and Young, G. M. 1984.** Prediction of some weathering trends of plutonic and volcanic rocks based on thermodynamic and kinetic considerations. *Journal of Geology*, 48, 1523–1534.
- Ono, A., 1976.** Chemistry and zoning of zircons from some Japanese granitic rocks. *Journal of the Japanese Association of Mineralogists, Petrologists and Economic Geologists* 71, 17.
- Oomkens, E., and Terwindt, J.H.J., 1960.** Inshore estuarine sediments in the Haringvliet (Netherlands). *Geol. Mijnbouw*, 39, 701–710.
- Orton, G. J., and Reading, H. G., 1993.** Variability of Deltaic processes in terms of sediment supply, with particular emphasis on grain size. *Sedimentology*, 40, 475–512.
- Passchier, C.W., and Trouw, R.A.J., 1996.** Microtectonics: Springer, Berlin, 325 pp.
- Patchett, P.J., Kouvo, O., Hedge, C.E., and Tatsumoto, M., 1981.** Evolution of continental crust and mantle heterogeneity: evidence from Hf isotopes. *Contributions to Mineralogy and Petrology*, 78, 279–297.
- Patchett, P.J., and Tatsumoto, M., 1980a.** A routine high-precision method for Lu–Hf isotope geochemistry and chronology. *Contributions to Mineralogy and Petrology*, 75, 263–267.
- Patchett, P.J., and Tatsumoto, M., 1980b.** Lu–Hf total-rock isochron for the eucrite meteorite. *Nature*, 288, 571–574.
- Patchett, P.J., and Tatsumoto, M., 1980c.** Hafnium isotope variations in oceanic basalts. *Geophysical Research Letters*, 7, 1077–1080.

- Patchett, P.J., Vervoort, J.D., Söderlund, U., and Salters, V.J.M., 2004.** Lu–Hf and Sm–Nd isotopic systematics in chondrites and their constraints on the Lu–Hf properties of the Earth. *Earth and Planetary Science Letters*, 222, 29–41.
- Paterson, S. R., Vernon, R. H., and Fowler, T. K., 1991.** Aureole tectonics. In: Kenick, D. M. (Ed.) *Reviews in Mineralogy*, 673-722.
- Paterson, S. R., Vernon, R. H., and Tobisch, O. T., 1989.** A review of criteria for the identification of magmatic and tectonic foliations in granitoids. *Journal of Structural Geology*, 11,349-363.
- Pietranik, A.B., Hawkesworth, C.J., Storey, C.D., Kemp, A.I.S., Sircombe, K.N., Whitehouse, M.J., and Bleeker, W., 2008.** Episodic, mafic crust formation from 4.5 to 2.8 Ga: New evidence from detrital zircons, Slave craton, Canada. *Geology*, 36, 875-878.
- Polat, A., Kokfelt, T., Burke, K.C., Kusky, T., Bradley, D., Dziggel, A., and Kolb, J., 2016.** Lithological, structural, and geochemical characteristics of the Mesoarchean Târtoq greenstone belt, South-West Greenland, and the Chugach-Prince William accretionary complex, southern Alaska: Evidence for uniformitarian plate-tectonic processes. *Can. J. Earth Sci.*, 53, 1336–1371.
- Poujol, M., and Robb, L.J. 1999.** New U-Pb zircon ages on gneisses and pegmatite from south of the Murchison greenstone belt, South Africa. *South African Journal of Geology*, 102, 93-97.
- Poujol, M., Robb, L. J., Anhaeusser, C. R., and Gericke, B., 2003.** A review of the geochronological constraints on the evolution of the Kaapvaal Craton, South Africa. *Precambrian Research*, 127, 181-213.
- Prasad Rao, G. H. S. V., Murty, J. G. K., and Deekshitulu, M. N., 1964.** Stratigraphic relationship of Precambrian iron-formation and associated

sedimentary sequence in parts of Keonjhar, Dhenkanal and Sundergarh districts of Orissa, India. Proceedings of the International Geological Congress, 22nd Session, Pt. X, New Delhi, 72-87.

Rajesh, H.M., Mukhopadhyay, J., Beukes, N.J., Gutzmer, J., Belyanin, G.A., and Armstrong, R.A., 2009. Evidence for an early Archaean granite from Bastar craton, India. *J. Geol. Soc. London* 166, 193–196.

Ramakrishnan, M., and Vaidyanadhan, R., 2008. *Geology of India*, vols. 1 and 2. Geological society of India. Text Book Series, 572pp.

Ramdohr, P., 1957. "Die Pronto-Reaktion". *N. Jb. Min., Monatsh.* 217-222.

Ramseyer, K., Baumann, J. Matter, A., and Mullis, J., 1988. Cathodoluminescence colour of alpha-quartz. *Mineralogical Magazine*, 52, 669–77.

Rasbary, S. D., and Heinrich, K. F. J., 1974. Calibration for interelement effects in X-ray fluorescence analysis. *Analytical Chemistry*, 46, 81-89.

Ray, S. L., Sarkar, S. S., Saha, A. K. and Sarkar, S. N. 1991. REE distribution in the early Archaean amphibolites of the Singhbhum-Orissa Iron Ore craton, eastern India. *Ind. Minerals*, 45, 19-32.

Red Book, 2010. Uranium Resources, Production and Demand. A Joint Report by the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA), NEA No. 456 pp.

Reineck, H. E., and Singh, I. B., 1973, Depositional sedimentary environments— with reference to terrigenous clastics. Berlin: Springer-Verlag, 439 pp.

Roberts, N. M. W., and Spencer, C. J., 2014. The zircon archive of continent formation through time. In: Roberts, N.M.W., Van Kranendonk, M., Parman, S.,

- Shirey, S., Clift, P.D. (Eds.), *Continent Formation Through Time*. Geological Society, London, Special Publications 389, 197–225.
- Roser, B.P., and Korsch, R.J., 1986.** Determination of Tectonic setting of sandstone-mudstone suites using SiO₂ content and K₂O/Na₂O ratio. *Journal of Geology*, 94, 635-650.
- Roser, B.P., and Korsch, R.J., 1988.** Provenance Signatures of Sandstone-Mudstone suites determined using discriminant function analysis of major-element data. *Chemical Geology*, 67, 119-139.
- Rosiere, C.A., and Rios, F.J., 2004.** The origin of hematite in high-grade iron ore based on infrared microscopy and fluid inclusion studies; the example of the Conceicao mine, Quadrilatero Ferrifero, Brazil: *Economic Geology*, 99, p. 611–624.
- Roy, A., 1998.** Isotopic evolution of Precambrian mantle-a case study of Singhbum-Orissa craton. Unpubl. Ph.D. Thesis, Indian School of Mines, Dhanbad.
- Roy, A., Sarkar, A., Jeyakumar, S., Aggrawal, S.K., and Ebihara, M., 2002.** Sm–Nd age and mantle characteristics of the Dhanjori volcanic rocks, Eastern India. *Geochemical Journal*, 36, 503-518.
- Rusk, B., and Reed, M., 2002.** Scanning electron microscope–cathodoluminescence analysis of quartz reveals complex growth histories in veins from the Butte porphyry copper deposit, Montana. *Geology*, 30, 727–30.
- Saager, A., and Stupp, H. D., 1983.** U-Ti Phases from Precambrian Quartz-Pebble Conglomerates of the Elliot Lake Area, Canada, and the Pongola Basin, South Africa. *TMPM Tschermaks. Min. Petr. Mitt.* 32, 83-102
- Saha, A. K., 1994.** Crustal evolution of Singhbum–North Orissa, eastern India. *Memoir of the Geological Society of India*, 27, 1-341.

- Saha, G.K.. 1972.** Petrogenetic and structural evolution of the Singhbhun~ granitic complex. eastern India. Int. Geol. Congr.. 24th. Rep.. Sect. 2. 149-157.
- Saha, A., Basu, A. R., Garzzone, C., Bandyopadhyay, P. K., and Chakrabarti, A. 2004.** Geochemical and petrological evidence for subduction accretion processes in the Archean Eastern Indian Craton. Earth and Planetary Science Letters, 220, 91–106.
- Saha, A. K., and Guha, P. K., 1968.** Genesis of the xenolithic granophyre dyke rocks within the Singhbum granite. Bull. Geol. Soc. Ind. 5, 73-76.
- Saha, A.K., Ray, S.L., Ghosh, S., Mukhopadhyay, K., and Dasgupta, D., 1984.** Studies on crustal evolution of the Singhbum-Orissa iron ore craton. Monograph on “Crustal evolution and metallogenesis in selected areas of the Indian shield”, Indian Society of Earth Science, 1-74.
- Saha, A. K., Ray, S. L., and Sarkar, S. N., 1988.** Early history of the Earth: evidence from the Eastern Indian Shield. In: Mukhopadhyay, D. (Ed.) Precambrian of the Eastern Indian Shield. Memoirs of the Geological Society of India, 8, 13–37.
- Saha, A.K., Sankaran, A. V., and Bhattacharyya, T. K., 1973.** Geochemistry of Newer dolerite suite of intrusions within the Singhbum Granite. Journal of Geological Society of India, 13, 113-121.
- Saini, N. K., Mukherjee, P. K., Rathi, M. S., and Khanna, P. P., 2000.** Evaluation of energy-dispersive X-ray fluorescence spectrometry in the rapid analysis of silicate rocks using pressed powder pellets. X-ray Spectrometry 29, 166–172.
- Sarkar, S.N., Ghosh, D.K., and St Lambert, R. J., 1986.** Rubidium-Strontium and lead isotopic studies of the Soda granites from Musaboni area, Singhbum Copper Belt. Sarkar, S.N. (Eds.), Geology and Geochemistry of Sulphide Ore

- Bodies and associated Rocks in Musaboni and Rakha Mines Section in the Singhbhum Copper Belt, Diamond Jubilee Monograph, Indian School of Mines Dhanbad, 101–110.
- Sarkar, S. C., and Gupta, A., 2012.** Crustal evolution and metallogeny in India. Cambridge University Press, Delhi, 840 pp.
- Sarkar, S.N., and Saha, A.K., 1962.** A revision of the Precambrian stratigraphy and tectonics of Singhbhum and adjacent region. Quarterly Journal of the Geological, Mineralogical and Metallurgical Society of India, 34, 97-136.
- Sarkar, S.N., and Saha, A.K., 1963.** On the occurrence of two intersecting Precambrian orogenic belts in Singhbhum and adjacent areas, India, Geological Magazine, 100, 69-92.
- Sarkar, S.N., Saha, A.K., and Miller, J.A., 1969.** Geochronology of the Pre-Cambrian rocks of Singhbhum and adjacent regions, Eastern India. Geological Magazine, 106, 15-45.
- Sarkar, S.N., Saha, A.K., and Miller, J.A., 1977.** The present status of the Precambrian stratigraphy, tectonics and geochronology of Singhbhum-Keonjhar-Mayurbhanj region, eastern India. Indian Journal of Earth Science, 37-65.
- Schoene, B., and Bowring, S.A., 2010.** Rates and mechanisms of Mesoarchean magmatic arc construction, eastern Kaapvaal craton, Swaziland. Geol. Soc. Am. Bull. 122, 408–429.
- Schoene, B., Crowley, J.L., Condon, D.C., Schmitz, M.D., and Bowring, S.A., 2006.** Reassessing the uranium decay constants for geochronology using ID-TIMS U-Pb data: Geochimica et Cosmochimica Acta, v. 70, p. 426–445.

- Schwab, F. L., 1975.** Framework mineralogy and Chemical composition of continental margin-type sandstone. *Geology*, 3, 487–490.
- Sengupta, S., Acharyya, S.K., and de Smeth, J.B., 1997.** Geochemistry of Archean volcanic rocks from Iron Ore Supergroup, Singhbhum, eastern India. *Proceeding of Indian Academy of Science, Earth and Planetary Sciences*, 106, 327–342.
- Sengupta, S., Paul, D. K., de Laeter, J. R., McNaughton, N. J., Bandyopadhyay, P. K., and de Smeth, J. B., 1991.** Mid-Archaean evolution of the eastern Indian craton: geochemical and isotopic evidence from the Bonai pluton. *Precambrian Research*, 49, 23–37.
- Seyedolali, A., Krinsley, D.H., Boggs S., JR., O'Hara, P.F., Dypvik, H., and Goles, G.G., 1997.** Provenance interpretation of quartz by scanning electron microscope-cathodoluminescence fabric analysis. *Geology*, 25, 787–790.
- Sharma, R.S., 2009.** Cratons and Fold belts of India. Springer: Heidelberg; 1-304.
- Sharma, M., Basu, A.R. and Ray, S.L., 1994.** Sm–Nd isotopic and geochemical study of the Archaean tonalite amphibolite association from the eastern Indian Craton, *Contrib. Mineral. Petrol.* 117, 45–55.
- Singh, M. R., Manikyamba, C., Ganguly, S., Ray, J., Santosh, M., Dhanakumar Singh, T., and Chandan Kumar, B., 2016.** Paleoproterozoic arc basalt-boninite-high magnesian andesite-Nb enriched basalt association from the Malangtoli volcanic suite, Singhbhum Craton, eastern India: Geochemical record for subduction initiation to arc maturation continuum. *Journal of Asian Earth Sciences*, 134, 191–206.
- Sláma, J., Košler, J., Condon, D.J., Crowley, J.L., Gerdes, A., Hanchar, J.M., Horstwood, M.S.A., Morris, G.A., Nasdala, L., Norberg, N., Schaltegger,**

- U., Schoene, B., Tubrett, M.N., and Whitehouse, M.J., 2008.** Plešovice zircon - A new natural reference material for U-Pb and Hf isotopic microanalysis. *Chem. Geol.*, 249, 1–35.
- Smith, A. J. B., and Beukes, N. J., 2016.** Paleoproterozoic Banded Iron formation-Hosted High Grade Hematite Iron Ore Deposits of Transvaal Supergroup, South Africa. *Episodes*, 39, 269-284.
- Sośnicka, M., Bakker, R. J., Broman, C., Pitcairn, I., Paranko, I., and Burlinson, K., 2015.** Fluid types and their genetic meaning for the BIF-hosted iron ores, Krivoy Rog, Ukraine, *Ore Geology Reviews*, 68, 171-194.
- Spier, C. A., Oliveira, S. M. B., Rosiere, C. A., and Ardisson, J. D., 2008.** Mineralogy and trace-element geochemistry of the high-grade iron ores of the Águas Claras Mine and comparison with the Capão Xavier and Tamanduá iron ore deposits, Quadrilátero Ferrífero, Brazil. *Mineralium Deposita*, 43, 229-254.
- Stacey, J. S., and Kramers, J. D., 1975.** Approximation of terrestrial lead isotope evolution by a two-stage model. *Earth Planetary Science Letter*, 26, 207-221.
- Stunitz, H., 1998.** Syndeformational recrystallization – dynamic or compositionally induced? *Contributions to Mineralogy and Petrology*, 131, 219–36.
- Swift, D. J. P., Stanley, D. J., and Curay, J. R., 1971.** Relict sediments on continental shelves: a reconsideration. *Journal of Geology*, . 79, 322-346.
- Tait, J., Zimmermann, U., Miyazaki, T., Presnyakov, S., Chang, Q., Mukhopadhyay, J., and Sergeev, S., 2011.** Possible juvenile Palaeoarchaean TTG magmatism in eastern India and its constraints for the evolution of the Singhbhum craton. *Geological Magazine*, 148, 340-347.

- Taylor, S. R., and McLennan, S. M., 1985.** The continental crust: its composition and Evolution; An examination of the Geochemical Record preserved in sedimentary Rocks. Blackwell Scientific Publications, 1-312.
- Taylor, S. R., and McLennan, S. M., 2009.** Planetary crusts: their composition, origin and evolution. Cambridge University Press, 378 p.
- Terwindt, J. H.J., 1981.** Origin and sequences of sedimentary structures in onshore mesotidal deposits of the North Sea. In: SD. Nio, R.T.E. Shuttenhelm and Tj.C.E. van Weering (Eds.), Holocene Marine Sedimentation in the North Sea Basin. Spec. Publ. Int. Assoc. Sedimentology, 5, 4-26.
- Upadhyay, D., Chattopadhyay, S., Kooijman, E., Mezger, K., and Berndt, J. 2014.** Magmatic and metamorphic history of Paleoarchean tonalite–trondhjemite–granodiorite (TTG) suite from the Singhbum craton, eastern India. Precambrian Research, 252, 180-190.
- USGS, 2017.** Global iron ore production data, clarification from the USGS, Mining Engineering, 69, 20-23.
- Valley, J.W., Cavosie, A.J., Ushikubo, T., Reinhard, D.A., Lawrence, D.F., Larson, D.J., Clifton, P.H., Kelly, T.F., Wilde, S.A., Moser, D.E., and Spicuzza, M.J., 2014.** Hadean age for a post-magma-ocean zircon confirmed by atom-probe tomography. Nature Geoscience, 7, 219–223.
- van Kranendonk, M.J., Smithies, R.H., Griffin, W.L., Huston, D.L., Hickman, A.H., Champion, D.C., Anhaeusser, C.R., and Piranjo, F., 2015.** Making it thick: a volcanic plateau origin of Palaeoarchean continental lithosphere of the Pilbara and Kaapvaal cratons. In: Roberts, N.M.W., Van Kranendonk, M., Parman, S., Shirey, S., Clift, P.D. (Eds.), Continent Formation Through Time. Geol. Soc. London Special Publication, 389, 83–111.

- Vasudeva Rao, M., Nagabhushana, J.C., and Jeyagopal, A.V., 1989.** Uranium mineralisation in the Middle Proterozoic carbonate rock of the Cuddapah Supergroup, Southern Peninsular India. *Exploration Research Atomic Minerals*, 2, 29–38.
- Vasudeva Rao, M., Sinha, K.K., Mishra, B., Balachandran, K., Srinivasan, S., and Rajasekharan, P., 1988.** Quartz-Pebble Conglomerate from the Dhanjori – A New Uranium Horizon of Sighbhum Uranium Province. *Memoir Geological Society, India*, 9, 89-95.
- Vavra, G., 1990.** On the kinematics of zircon growth and its petrogenetic significance: a cathodoluminescence study. *Contributions to Mineralogy and Petrology*, 106, 90-99.
- Veizer, J., and Mackenzie, F.T., 2003.** Evolution of sedimentary rocks. *Treatise on Geochemistry*, 7, 369–407.
- Veizer, J., and Mackenzie, F. T. 2005.** Evolution of sedimentary rocks. In Holland, H. D., and Turekian, K. K. eds. *Treatise on geochemistry 7, Sediments, diagenesis and sedimentary rocks*. Elsevier, 369-407.
- Vervoort, J. D., Kemp, A., Fisher, C., and Bauer, A., 2016.** Development of the depleted mantle reservoir and growth of the continental crust begins at ~ 3.8 Ga., 35th International Geological Congress, Cape Town, S. Africa, Aug. 2016.
- Vervoort, J.D., Patchett, P.J., Gehrels, G.E., and Nutman, A.P., 1996.** Constraints on early Earth differentiation from hafnium and neodymium isotopes. *Nature*, 379, 624–627.
- Viswanath, R.V., and Mahadevan, T.M., 1988.** Uranium exploration in India: An overview. In: *Uranium deposits in Asia and the Pacific: Geology and exploration*. IAEA, Vienna, 213–228.

- Viswanath, R. V., Roy, M.K., Pandit, S. A., and Narayan Das, G. R., 1988.** Uranium Mineralisation in the Quartz Pebble Conglomerates of Dharwar Supergroup, Karnataka. Memoir of the Geological Society of India, 9, 33-41.
- Vohra, C.P., Dasgupta, S., Paul, D.K., Bishni, P.K., Gupta, S.N., and Guha, S., 1991.** Rb-Sr chronology and petrochemistry of granitoids from the southeastern part of the Singhbhum Craton. Orissa. Journal of Geological Society of India, 38, 5–22.
- Walker, R. G., 2006.** Facies models revisited. In H. W. Posamentier & R. G. Walker (Eds.), Facies models revisited. Tulsa: SEPM (Society for Sedimentary Geology), Special Publication No 84, 1–17.
- Walker, G., and Burley, S., 1991.** Luminescence petrography and spectroscopic studies of diagenetic minerals. In: Luminescence Microscopy and Spectroscopy: Quantitative and Qualitative Applications, SEPM Short Course 25, 83–96.
- Walker, L. N., Mylroie, J. E., Walker, A. D., and Mylroie, J. R., 2008.** A preliminary geologic reconnaissance of Abaco Island, Bahamas. In: Freile, D., and Park, L., (Eds.), Proceedings of the 13th Symposium on the geology of the Bahamas and Other carbonate regions, 89-97.
- Wiedenbeck. M., Alle, P., Corfu, F., Griffin, W.L., Meier, M., Oberli, F., von Quadt, A., Roddick, J.E., and Spiegel, W., 1995.** Three natural zircon standards for U-Th-Pb, Lu-Hf, trace element and REE analyses. Geostandards Newsletter, 19, 1-23.
- Wilde, S.A., Valley, J.W., Peck, W.H., and Graham, C.M., 2001.** Evidence from detrital zircons for the existence of continental crust and oceans on the Earth 4.4 Gyr ago. Nature, 409, 175–178.

- Witts, D., Hall, R., Nicols, G., and Morley, R., 2012.** A new depositional and provenance model for the Tanjung Formation, Barito Basin, SE Kalimantan, Indonesia. *Journal of Asian Earth Sciences*, 56, 77-114.
- Yan, Z., Wang, Z., Yan, Q., Wang, T., and Guo, X., 2012.** Geochemical constraints on the provenance and depositional setting of the Devonian Liuling Group, east Qinling Mountains, central China: implications for the tectonic evolution of the Qinling orogenic belt. *Journal of Sedimentary Research* 82, 9-20.
- Zegers, T.E., and van Keken, P. E., 2001.** Middle Archean continent formation by crustal delamination. *Geology*, 29, 1083-1086.
- Zeh, A., Gerdes, A., and Barton, J.M., Jr., 2009.** Archean accretion and crustal evolution of the Kalahari Craton—the zircon age and Hf isotope record of granitic rocks from Barberton/Swaziland to the Francistown Arc. *Journal of Petrology*, 50, 933–966.
- Zeh, A., Gerdes, A., and Christoph, H., 2013.** U–Pb and Hf isotope data of detrital zircons from the Barberton Greenstone Belt: constraints on provenance and Archaean crustal evolution. *Journal of the Geological Society, London*, 170, 215-223.
- Zeh, A., Gerdes, A., and Milloni, G. L., 2011.** Hafnium isotope record of the Ancient Gneiss Complex, Swaziland, southern Africa: Evidence for Archaean crust–mantle formation and crust reworking between 3.66 and 2.73 Ga. *Journal of the Geological Society, London*, 168, 953–963.
- Zheng, J., Griffin, W.L., O'Reilly, S.Y., Yang, J.S., and Zhang, R.Y., 2006.** A refractory mantle protolith in younger continental crust, east-central China: Age and composition of zircon in the Sulu ultrahigh-pressure peridotite. *Geology*, 34, 705–708.

- Zimmermann, U., and Bahlburg, H., 2003.** Provenance analysis and tectonic setting of the Ordovician deposits in the southern Puna basin, NW Argentina. *Sedimentology*, 50, 1079–1104.
- Zinkernagel, U., 1978.** Cathodoluminescence of quartz and its application to sandstone petrology. In: Füchtbauer, H., Lisitzyn, A.P., Milliman, J.D., and Seibold, K., (Eds.), *Contributions to Sedimentology* 8, pp. 1–67.
- Zuffa, G. G., 1985.** Provenance of arenites. Reidel, Dordrecht, 408 pp.