

P. Morthekai



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Date of Birth 26-01-1977

Graduate education

1995-1998: B.Sc. in Physics with Mathematics and Chemistry as ancillary subjects, Pope's College, Manonmanium Sundaranar University, Tirunelveli, Tamil Nadu, India.

Post Graduate education

1998-2000, M.Sc. in Physics, Pope's College, Manonmanium Sundaranar University, Tirunelveli, Tamil Nadu, India.

Master's thesis title: *Equivalence ionospheric current estimation: Counter electrojet*. Supervisor: Dr. S. Gurubaran, Head, Equatorial Geophysical Research Laboratory (IIGM), Tirunelveli, TN.

Doctoral research

2001-2007: Ph.D. in Physics, Physical Research Laboratory, Ahmedabad, India.

Doctoral thesis title: *Investigations on the radiation dose distributions in natural environment and their implications in luminescence chronology*. Advisor: Professor Ashok K. Singhvi.

Present and past employment

2006-2009	Post Doctoral Researcher	Risoe National Laboratory, Roskilde, Denmark.
2009-2011	Post Doctoral Fellow	Physical Research Laboratory, Ahmedabad, India.
2011-2011	Project Scientist	Institute of Seismological Research, Gandhinagar, India.
2012-2012	Scientist-B	Institute of Seismological Research, Gandhinagar, India.
2012-2013	Project Scientist (DST)	National Geophysical Research Institute, Hyderabad, India.
2013a-2013b	Assistant Professor (Sr.)	Vellore Institute of Technology, Vellore, India.
2014-ongoing	Scientist-B	Birbal Sahni Institute of Palaeosciences, Lucknow.

Participation in Scientific Programmes/Projects

- Co-Investigator **Assessment of a Luminescence Dating (LD) Technique in Martian Surface exploration**
– an European Space Agency (ESA) project (ESTEC Contract No. 18581/04/04/NL/HB)
- Principal Investigator **Extending the dating range of luminescence dating using feldspars**
– Fast Track project for Young Scientist from DST, India (SR/FTP/ES-56/2011)

Courses for self-equipment

1. **Biological Diversity (Theories, Measures and Data sampling techniques)** by National Research Toms State University on Coursera. Certificate earned on September 10, 2016.
2. **Project Management: The Basics for Success** by University of California, Irvine on Coursera. Certificate earned on December 31, 2016.
3. **Philosophy and the Sciences: Introduction to the Philosophy of Physical Sciences** by The University of Edinburgh on Coursera. Certificate earned on January 7, 2017.

Experiences

(Total 10+ years of post doctoral research experiences)

Other professional activities

1. **Reviewer** in Physica B, NIM B, Radiation Measurements, Quaternary Geochronology and Geochronometria.

Invited Talks

1. **Applications of TL and OSL in terrestrial and extra-terrestrial materials: recent advances and challenges.** University of Baroda, Vadodara, India.
2. **Luminescence Dating: Principles, Methodology and Applications.** Winter School sponsored by DST-SERB (16th-19th/01/2014) in University of Pune, Pune, India.
3. **Luminescence Dating.** GIAN course sponsored by MHRD, Govt. of India (19th October, 2016) in IIT Kanpur, India.

List of Publications

SCOPUS (Author ID 13606046900) h-index =9, Citations Scopus - 307

Published papers: (IF → Impact Factor)

1. Mayya, Y. S., **Morthekai, P.**, Murari, M. K. and Singhvi, A. K., 2006. Towards quantifying beta microdosimetric effects in single-grain quartz dose distribution, Radiation Measurements, 41, 1032-1039. **[IF=1.019; Citations=48]**

Link: <http://www.sciencedirect.com/science/article/pii/S1350448706001302>

2. Beveridge, C., Kocurek, G., Ewing, R. C., Lancaster, N., **Morthekai, P.**, Singhvi, A. K. and Mahan, S., 2006. Development of spatially diverse and complex dune-field patterns: Gran Disierto Dune Field, Sonora, Mexico, *Sedimentology* 53 (6), 1391-1409. **[IF=2.114; Citations=27]**

Link: <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3091.2006.00814.x/full>

3. Srivastava, P., Brook, G. A., Marais, E., **Morthekai, P.** and Singhvi, A. K., 2006. Depositional environment and OSL chronology of the Homeb silt deposits, Kuiseb River, Namibia, *Quaternary Research*, 65, 478-491. **[IF=2.675; Citations=23]**

Link: <http://www.sciencedirect.com/science/article/pii/S0033589406000123>

4. **Morthekai, P.**, Jain, M., Dartnell, L., Murray, A. S., Bøtter-Jensen, L. and Desorgher, L., 2007. Modelling of the dose-rate variations with depth in the martian regolith using GEANT4. *Nuclear Instruments & Methods in Physics Research A* 580, 667-670. **[IF=1.317; Citations=9]**

Link: <http://www.sciencedirect.com/science/article/pii/S0168900207009710>

5. **Morthekai, P.**, Jain, M., Murray, A. S., Thomsen, K. J. and Bøtter-Jensen, L., 2008. Fading characteristics of martian analogue materials and the applicability of a correction procedure. *Radiation Measurements* 43, 672-678. **[IF=1.019; Citations=18]**

Link: <http://www.sciencedirect.com/science/article/pii/S1350448708000760>

6. Ankaergaard, C., Jain, M., Kalchgruber, R., Lapp, T., Klein, D., McKeever, S. W. S., Murray, A. S. and **Morthekai, P.**, 2009. Further investigations into Pulsed Optically Stimulated Luminescence from Feldspars using Blue and Green light. *Radiation Measurements*, *Radiation Measurements* 44, 576-581. **[IF=1.019; Citations=13]**

Link: <http://www.sciencedirect.com/science/article/pii/S1350448709000432>

7. **Morthekai, P.**, Jain, M., Cunha, P. P., Azevedo, J. and Singhvi, A. K., 2011. An attempt to correct for the fading in million year old basaltic rocks. *Geochronometria* 38, 223-230. (DOI) 10.2478/s13386-011-0033-6. **[IF=0.667; Citations=4]**

Link: <http://www.springerlink.com/content/277q4u43673032q0/>

8. Biswas, R. H., **Morthekai, P.**, Gartia, R. K., Chawla, S. and Singhvi, A. K., 2011. Thermoluminescence of the meteorite interior: a possible tool for the estimation of cosmic ray exposure ages. *Earth and Planetary Science Letters* 304, 36-44. **[IF=4.062; Citations=2]**

Link: <http://www.sciencedirect.com/science/article/pii/S0012821X11000264>

- 9 **Morthekai, P.**, Jugina Thomas, M. S. Pandian, V. Balaram and Singhvi, A. K., 2012. Variable range hopping mechanism in band-tail states of K-feldspars – a time resolved IRSL study. *Radiation Measurements* 47, 857-863. [IF=1.019; Citations=3]

Link: <http://www.sciencedirect.com/science/article/pii/S1350448712000832>

- 10 Pagonis, V., **Morthekai, P.**, Singhvi, A. K., Thomas, J., Balaram, V., Kitis, G. and Chen, R., 2012. Time-resolved Infra-red stimulated luminescence signals in feldspars: Analysis based on exponential and stretched exponential functions. *Journal of Luminescence* 132, 2330-2340. [IF=1.795; Citations=1]

Link: <http://www.sciencedirect.com/science/article/pii/S0022231312002372>

- 11 **Morthekai, P.**, Jain, M., Gach, G., Elema, D. R. and Prip, H., 2013. Dependence of (anomalous) fading of Optically Stimulated Luminescence on Trap Occupancies in Feldspars. *Journal of Luminescence* 143, 704-709. [IF= 1.795, Citations=0]

Link: <http://www.sciencedirect.com/science/article/pii/S0022231313003219>

- 12 Sundriyal, Y., Chaudhary, S., Jaiswal, M., **Morthekai, P.**, Sati, S. P., Juyal, N. and Wasson, D. J., 2013. A 1000-year history of large floods in the upper Ganga catchment, Central Himalaya, India. *Quaternary Science Reviews* 77, 156-166. [IF= 4.076, Citations=2]

Link: <http://www.sciencedirect.com/science/article/pii/S0277379113002874>

- 13 Pagonis, V., **Morthekai, P.** and Kittis, G., 2014. Kinetic analysis of thermoluminescence glow curves in feldspar: evidence for a continuous distribution of energies. *Geochronometria* 1-10.

Link: <http://link.springer.com/article/10.2478/s13386-013-0148-z>

- 14 Pagonis, V., Phan, H., Goodnow, R., Rosenfeld, S., and **Morthekai, P.** Mathematical characterization of continuous wave infrared stimulated luminescence signals (cw-IRSL) from feldspars. *Journal of Luminescence* 154, 362-368.

<http://www.sciencedirect.com/science/article/pii/S0022231314002919>

- 15 **Morthekai, P.**, Chauhan, P. R., Jain, M., Shukla, A. D., Rajapara, H. M., Krishnan, K., Sant, D. A., Patnaik, R., Reddy, D. V. and Singhvi, A. K. (2015) Thermally re-distributed IRSL (RD-IRSL): a new possibility of dating sediments near B/M boundary. *Quaternary Geochronology* 30 (B), 154-160.

<http://www.sciencedirect.com/science/article/pii/S1871101415300315>

- 16 Kothyari, G. C., Rastogi, B. K., **Morthekai, P.**, Dumka, R. K. and Kandregula, R. S., 2016. Active segmentation assessment of the tectonically active South Wagad Fault in Kachchh, Western Peninsular India. *Geomorphology* 253, 491-507.
<http://www.sciencedirect.com/science/article/pii/S0169555X1530194X>
- 17 Kothyari, G. C., Rastogi, B. K., **Morthekai, P.** and Dumka, R. K., 2016. Landform development in a zone of active Gedi Fault, Eastern Kachchh rift basin, India. *Tectonophysics* 670, 115-126.
<http://www.sciencedirect.com/science/article/pii/S004019511600007X>
- 18 Sarkar, A., Mukherjee, A. D., Bera, M. K., Das, B., Juyal, N., **Morthekai, P.**, Deshpande, R. D., Shinde, V. S. and Rao, L. S., 2016. Oxygen isotope in archaeological bioapatites from India: Implications to climate and decline of Bronze Age Harappan civilization. *Scientific Reports* 6, 26555. doi:10.1038/srep26555.
<http://www.nature.com/articles/srep26555>
- 19 Rai, M., Singh, S. K. and **Morthekai, P.**, 2016. Laser-induced excited state crossover and spectral variation of Cr^{3+} in the high crystal field environment of CaGa_2O_4 . *Optics Letters* 41 (15), 3635-3638.
Link: <https://www.osapublishing.org/ol/abstract.cfm?uri=ol-41-15-3635>
- 20 Tripathi, D., Chauhan, D. K., Farooqui, A., Kotlia, B. S., Thakur, B., **Morthekai, P.**, Long, T., Chauhan, M. S. and Pokharia, A. K., 2017. Late Quaternary climatic variability in the Central Ganga Plain: A multi-proxy record from Karela Jheel (Lake). *Quaternary International*. In Press. [IF=2.062; Citations=0]
Link: <http://www.sciencedirect.com/science/article/pii/S1040618216310552>