

Dr. Aditi Krishna Dave

Postdoctoral Researcher in European Research Council (ERC) Project PROGRESS,
Centre for Nuclear Dating and Radioactivity, Babes-Bolyai University, Cluj-Napoca Romania

Email: aditi.dave@ubbcluj.ro; *Tele:* +40 072475735

ORCID - <https://orcid.org/0000-0002-2836-9155>

Google Scholar - <https://scholar.google.com/citations?user=KJqt5x4AAAAJ&hl=en>

ACADEMIC QUALIFICATIONS AND RESEARCH EXPERIENCE

- Sept 2022- Present Postdoctoral Researcher in *ERC PROGRESS*
Babes-Bolyai University, Cluj-Napoca, Romania
Advisor: Prof. Alida Timar-Gabor
- Sept 2021- Jul 2022 Postdoctoral Researcher
Department of Geosciences, University of Tuebingen, Germany
Advisor: Prof. Kathryn E. Fitzsimmons
- Mar 2017- Aug 2021 PhD Geology [Magna Cum Laude]
Max Planck Institute for Chemistry (MPIC), Mainz, Germany
Degree Awarding Institution: Johannes Gutenberg University (JGU), Mainz
Title: Understanding Quaternary aeolian landscape-climate interaction in the piedmonts of Central Asia using Luminescence and Electron Spin Resonance techniques. Advisor: Prof. Kathryn E. Fitzsimmons
- 2015-16 Visiting Research Scientist
Luminescence Laboratory, Physical Research Laboratory, Ahmedabad, India
Project: Luminescence dating of alluvio-fluvial sediments from the Ghaggar-Hakra plains in northwest India and its implications on the Harappan culture. Advisor: Prof. Ashok K. Singhvi
- 2014- 15 M.Sc. Archaeological Sciences [Distinction]
University of Oxford, U.K. (Felix Scholar)
Title: Application and development of luminescence dating techniques for sediments and burnt flints from the palaeolithic site of Riparo Mochi, Italy. Advisor: Dr. Marine Frouin, Dr. Jean-Luc Schwenninger, Prof. Thomas Higham
- 2012-14 M.Sc. Chemistry [First Division]
University of Delhi, India
Title: Study of archaeological organic residues using mass spectroscopic techniques: A review. Advisor: Dr. K Gopalaiah and Dr. A.K. Prasad
- 2009-12 B.Sc. Chemistry (Honors) [First Division]
Miranda House College, University of Delhi, India
Title: Comprehensive study of Urease enzyme activity in decoated pigeon-pea seeds Advisor: Dr. Janaki Subramanyan

AWARDS AND ACHIEVEMENTS

- Sept 2021 **Martin Aitken Prize for Fundamental research (Best Oral presentation)**
16th International Luminescence and Electron Spin Resonance Dating (LED) Conference
- Nov 2020 **Best Oral Presentation**
German Luminescence and Electron Spin Resonance Dating Conference, Leipzig
- Aug 2019 **Best Poster Award**
UK Luminescence and Electron Spin Resonance Dating Conference, Denmark
- Sept 2017 **Nicholas Copernicus Prize for the Brightest young stars in Luminescence dating**
15th International LED Conference, Cape town, South Africa.
- 2015 **Brasenose College, University of Oxford Academic Prize**
Distinction in M.Sc. Archaeological Sciences, University of Oxford
- 2015 **Brasenose College (Oxford) Annual Fund and Research Grant Scholarship**
Fieldwork: Archaeological site of Riparo Mochi, Italy.
- 2014-15 **Felix Scholarship**
Awarded full Scholarship (c. 30000 £) by the University of Oxford to pursue M.Sc Archaeological Sciences
- 2012 **Miranda House College Principal's Medal**
Exemplary performance in academics and extra-curricular activities (B.Sc.)
- 2010-11,
2011-12 **Science Merit Scholarship (Miranda House College, Delhi)**
Academic excellence, B.Sc. Chemistry (Hons).

TEACHING AND SUPERVISION

- 2022-
Present **Babes-Bolyai University, Cluj-Napoca, Romania**
Seminar on 'Radiation exposure dating techniques' (M.Sc)
- 2021 - 2022 **Department of Geosciences, University of Tübingen, Germany (Lecturer)**
Courses taught and graded:
 - Advanced Sedimentology (MSc Geosciences, with Prof. K.E Fitzsimmons)
 - Dating of Quaternary Sediments (MSc Geosciences, Independently)
- 2018 – 2020
(As a PhD
student) **Supervision in the Field – Teaching of sampling methodology for luminescence, sedimentology and geochemical analysis** (Undergraduate and Graduate students from Germany and Tajikistan)
Supervision in the Laboratory (Luminescence dating – Graduate students interning at Max Planck Institute for Chemistry, Mainz)

PROFESSIONAL RESPONSIBILITIES

- 2023- Present Elected ECR Representative of the Stratigraphy and Chronology Commission (SACCOM), INQUA
- 2023 – Present Elected PAGES Early Career Network (ECN) - Steering Committee member
- 2022 - Present Organising Member Landscape Live seminar series, Webinar series of the European Geosciences Union (EGU) Geomorphology division
- 2019 - Present **Reviewer:** Frontiers in Earth Science, Palaeogeography, Palaeoclimatology, Palaeoecology, Catena and ECR Blog post for PAGES
- 2019 - 2023 Elected ECR representative for Loess Focus Group
A focus group of the International Union for Quaternary Research (INQUA)
- Nov 2019 Co-organiser, German Luminescence and Electron Spin Resonance Dating Conference, Bingen, Germany (Host Institute: MPIC)
- Oct 2017 Co-organiser, Doctoral colloquium, jointly organized by MPIC and Institute for Atmospheric Physics, JGU Mainz
- 2011-12 President, Environmental Society: 'Vatavaran', Miranda House College
- 2010-11 General Secretary, Environmental Society: 'Vatavaran', Miranda House College

GRANTS AND FUNDING

- 2022-23 International Association of Sedimentologists - Postdoctoral Research Grant (2500 EUR).
- 2022 INQUA Grant for ECR Conference /Meeting (6000 EUR)
Co-applicants: Xu, Z., Fenn, K., Dave, A.K., Taratunina, N., Yang, S.

FIELDWORK EXPERIENCE

- Oct 2022 **4 days: Tarcău Nappe, Eastern Carpathians, Romania** – *Sampling sedimentary rocks part of ancient turbidite fan systems.*
- Jun 2022 **10 days: Southern Alps, Italy** - *Sampling loess and glacial moraines along the Adige - Sarca region, Italy in collaboration with the Consiglio Nazionale delle Ricerche (CNR) Italy and University of Tuebingen.*
- Apr 2022 **5 days: Lake Garda, Italy** - *Sampling glacial moraines and glacio-fluvial outcrops in the Garda region, Italy.*

- Jun-Jul 2018 **6 weeks: Karamaidan in Tajikistan - Sampling of loess deposits**
- May 2018 **2 weeks: Fanshan, northeast China – Loess sampling in collaboration with the Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China**
- May-Jun 2017 **6 weeks: Southeast Kazakhstan (Almaty and Charyn Canyon) – Sampling of multiple loess sites for palaeoenvironmental reconstruction.**
- Aug 2017 **4 days: Remagen, Germany – Coring of loess sequence in collaboration with the Department of Geography, Johannes Gutenberg University, Mainz, Germany.**
- Jul 2015 **5 days: Palaeolithic site of Riparo Mochi, Italy – Archaeological fieldwork and sampling for luminescence dating**

INVITED TALKS

- Feb 2022 **Climate and Chronology Seminar Series, University of Oxford, U.K.**
Talk: Beyond Chronologies: Perspectives on human, landscape and climate interactions using trapped charge techniques.
- Jun 2021 **Luminescence Laboratory, University of Liverpool, U.K.**
Talk: Paramagnetic centres in quartz as provenance indicators: Implications for provenance study in aeolian environments.

WORKSHOPS/ SUMMER SCHOOLS/ SHORT COURSES

- Jul 2019 **16th Urbino Summer School on Palaeoclimatology: Past global change reconstruction and modelling techniques, University of Urbino, Italy**
- Jan 2019 **Workshop on 'Age-depth modeling and dust flux estimations from loess over the last 100 ka', Hungarian Academy of Sciences, Sopron, Hungary**
- Oct 2018 **International Workshop on 'Active Tectonics in the Tien Shan' at Friedrich-Schiller University, Jena, Germany**
- May 2018 **International Training Programme on 'Climate and environmental change along the Belt and Road (Central Asia)'**
Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China [*Awarded Funding: Chinese Academy of Sciences*].
- Mar 2018 **Short Course on 'Radiocarbon dating and Bayesian chronological analysis', University of Oxford, U.K.**
- Oct 2015 **International Summer School on 'Digital recording, study and public dissemination of historical European architectural heritage: The City of Rab (Croatia)' in Rab, Croatia**
[*Awarded funding: University of Padova, Italy*].
- Dec 2013 **Internship at the Art Conservation Centre, Indian National Trust for Art and Culture Heritage, New Delhi, India**

- 2013-14 **Distance learning diploma in Folklore and Culture Studies,**
Indira Gandhi National Open University, New Delhi, India [*Distinction*]
- 2010-11 **Short Course in Green Chemistry,** Miranda House College, University of Delhi.

PEER REVIEWED PUBLICATIONS

10. Timar-Gabor, A., Kabacińska, Z., Constantin, D., **Dave, A.K.**, Buylaert, J-P., (**in review**).
Reconstructing dust provenance from quartz optically stimulated luminescence (OSL) and electron spin resonance (ESR) signals: Preliminary results on loess from around the world. *Radiation Physics and Chemistry. Radiation in Physics and Chemistry*
9. **Dave, A. K.**, Lisa, L., Scardia, G., Nigmatova, S., and Fitzsimmons, K. E. **2023**. The patchwork loess of Central Asia: Implications for interpreting aeolian dynamics and past climate circulation in piedmont regions. *Journal of Quaternary Science*. <https://doi.org/10.1002/jqs.3493>
8. Li, Y., Song, Y., Fitzsimmons, K.E., **Dave, A.K.**, Liu, Y., Zong, X., Sun, H., Liu, H., Orozbaev, R. **2022**. Investigating potential links between fine-grained components in loess and westerly air-flow: evidence from East and Central Asia. *Frontiers in Earth Science* 10:901629. <https://doi.org/10.3389/feart.2022.901629>
7. Frouin, M., Douka, K, **Dave, A.K.**, Schwenninger, J-L., Mercier, N., Murray, A.S., Santaniello, F., Boschian, G., Grimaldi, S., Higham, T. **2022**. A refined chronology for the Middle and the early Upper Palaeolithic at Riparo Mochi (Liguria, Italy). *Journal of Human Evolution* (169), 103211. <https://doi.org/10.1016/j.jhevol.2022.103211>
6. **Dave, A. K.**, Timar-Gabor, A., Kabacińska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K. E. **2022**. A novel proxy for tracking the provenance of dust based on paired E1'-peroxy paramagnetic defect centers in fine-grained quartz. *Geophysical Research Letters*, 49, e2021GL095007. <https://doi.org/10.1029/2021GL095007>.
5. **Dave, A. K.**, Timar-Gabor, A., Scardia, G., Safaraliev, N., Fitzsimmons, K. E. **2022**. Variation in Luminescence Characteristics and Paramagnetic Defect Centres in Fine-Grained Quartz From a Loess-Palaeosol Sequence in Tajikistan: Implications for Provenance Studies in Aeolian Environments. *Frontiers in Earth Science*. 10:835281. doi: 10.3389/feart.2022.835281
4. Fitzsimmons, K.E.; Perić, Z.; Nowatzki, M.; Lindauer, S.; Vinnepand, M.; Prud'homme, C.; **Dave, A.K.**; Vött, A.; Fischer, P. **2021**. Luminescence Sensitivity of Rhine Valley Loess: Indicators of Source Variability? *Quaternary* 5 (1).
3. Fitzsimmons, K.E., Nowatzki, M., **Dave, A.K.**, Harder, H. **2020**. Intersections between wind regimes, topography and sediment supply: Perspectives from aeolian landforms in Central Asia. *Palaeogeography, Palaeoclimatology, Palaeoecology* 540, 109-531.
2. **Dave, A.K.**, Courty, M.A., Fitzsimmons, K.E., Singhvi, A.K. **2019**. Revisiting the contemporaneity of a mighty river and the Harappans: Archaeological, stratigraphic and chronometric constraints. *Quaternary Geochronology* 49, 230-235.

1. Schaetzl, R.J., Bettis, E.A., Crouvi, O., Fitzsimmons, K.E., Grimley, D.A., Hambach, U., Lehmkuhl, F., Marković, S.B., Mason, J.A., Owczarek, P., Roberts, H.M., Rousseau, D.-D., Stevens, T., Vandenberghe, J., Zarate, M., Veres, D., Yang, S., Zech, M., Conroy, J.L., **Dave, A.K.**, Faust, D., Hao, Q., Obreht, I., Prud'homme, C., Smalley, I., Tripaldi, A., Zeeden, C., Zech, R. **2018**. Approaches and challenges to the study of loess. *Quaternary Research* (89), 563-618.

OTHER PUBLICATIONS (Science Communication and Outreach)

Dave, A.K., 2021. Understanding Quaternary aeolian landscape-climate interaction in the piedmonts of Central Asia using luminescence and Electron Spin Resonance techniques. PhD thesis (Max Planck Institute for Chemistry, Mainz/JGU). <http://doi.org/10.25358/openscience-6387>

Subramanyan, J., **Dave, A.K.**, Ali, A.A., Kanwa, N., Yadav, S., Sameera, S., Meena, S. **2022**. Urease Activity in Pigeon Pea Seeds. *International Journal of All Research Education and Scientific Methods* 10 (12), 142-150. doi: <https://doi.org/10.56025/IJARESM.2022.101222142> (*Undergraduate research project*)

Dave, A.K. 2019. Tracking 800,000 Years of Climate Change: Snippets from a Field Campaign in Tajikistan. PAGES ECR Blog post: <https://theearlypages.blogspot.com/2019/05/tracking-800000-years-of-climate-change.html>

Fitzsimmons, K.E., **Dave, A.K.**, Johansson, A.E., Marquer, L., Prud'homme, C., Scardia, G., Safaraliev, N., **2019**. Palaeoclimate perspectives from the Silk Road: A field campaign in southern Tajikistan. *Quaternary Australasia*.

Nowatzki, M., Fitzsimmons, K.E., **Dave, A.K.**, Johansson, A.E., Marquer, L., Prud'homme, C., Scardia, G., Safaraliev, N., **2019**. Palaoklimaforschung an der Siedenstrasse: Eine Feldkampagne in Tadschikistan. *GMIT* 75 (March 2019),19-20. ISSN 1616-3931.

Reetz, K., **Dave, A.K.**, Johansson, A.E., Marquer, L., Prud'homme, C., Scardia, G., Safaraliev, N., Fitzsimmons, K.E., **2018**. Paläoklima Perspektiven von der Seidenstraße: Eine Feld Kampagne im Süden von Tadschikistan. *Verband für Geographie an deutschsprachigen Hochschulen und Forschungseinrichtungen*

Fitzsimmons, K.E., Prud'homme, C., Johannes, A., **Dave, A.K.**, **2017**. Hanging off cliffs in central Asia or, a field campaign in southern Kazakhstan. *Quaternary Australasia*, Vol. 34, No. 2, 17-19.

SELECTED ABSTRACTS (Conferences)

Talk / Oral presentations

Dave, A. K., Lenka, L., Scardia, G., Nigmatova, S., & Fitzsimmons, K. E. **2021**. Spatio-temporal variability in loess deposition across Central Asian piedmonts: Implications for understanding aeolian dynamics and past climate in the region. DEUQUA 2021, Germany.

Dave, A. K., Timar-Gabor, A., Kabacińska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K. E. **2021.** E₁' and peroxy paramagnetic centers in quartz as a proxy for provenance: Examples from Central Asia (*Martin Aitken Prize for Fundamental Research: 16th International LED Conference, virtual*)

Dave, A.K., Timar-Gabor, A., De Grave, J., Vandenberghe, D., Nigmatova, S., Fitzsimmons, K.E., **2021.** Reconstructing aeolian transport processes using luminescence and electron spin resonance characteristics of quartz grains: A case study from the Ili basin, SE Kazakhstan (virtual EGU 2021).

Dave, A.K., Lenka., L., Scardia, S., Fitzsimmons. K.E., **2021.** Spatio-temporal variations in loess depositional dynamics over the past 80 ka: A case study from the Ili basin of SE Kazakhstan. (virtual Doktorandenseminar 2021, IPA and MPIC, Mainz).

Dave, A.K., Timar-Gabor, A., Fitzsimmons, K.E., **2020.** Investigations on paramagnetic centres in Central Asian quartz: Implications for provenance study in aeolian environments (*Best Student Presentation: virtual German Luminescence and ESR Conference, Leipzig, Germany*).

Dave, A.K., Timar-Gabor, A., Fitzsimmons, K.E., **2019.** Paramagnetic centres in Quartz as a proxy for provenance: Preliminary investigation on Central Asian fine grain quartz (German Luminescence and ESR Conference, Bingen, Germany).

Dave. A.K., Lenka., L., Scardia, S., Prud'homme, C., Fitzsimmons. K.E., **2019.** Patchwork loess in Central Asia: A high resolution spatio-temporal record of pleistocene palaeoclimatic variability in piedmont loess along the Tien Shan (20th INQUA Congress, Dublin, Ireland).

Dave. A.K., Scardia, S., Fitzsimmons. K.E., **2018.** Anatomy and Timing of a fault in the loess at Malubai, southeast Kazakhstan (International Workshop on Active Tectonics in the Tien Shan, Friedrich-Schiller University, Jena, Germany).

Dave. A.K., Fitzsimmons. K.E., **2017.** Luminescence dating of Loess deposits in Central Asia (Doktorandenseminar 2017, IPA and MPIC, Mainz).

Poster Presentations (Selected)

Dave, A.K., Nigmatova, S., Fitzsimmons., K.E. **2022.** Luminescence sensitivity of quartz, a tracer for aeolian transport? An example from the Ili Basin of southeast Kazakhstan. Asia -Pacific Luminescence and Electron Spin Resonance Dating Conference (Virtual).

Dave, A.K., Timar-Gabor, A., Kabacinska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K.E. **2022.** Investigations on E' and peroxy paramagnetic centres in natural Quartz: Towards a new provenance approach in Earth Sciences. International Conference on Material properties, Measurements and applications, FMNC, Kerela, India (virtual)

Dave, A.K., Timar-Gabor, A., Fitzsimmons, K.E., **2019**. Preliminary investigations E' and peroxy paramagnetic centres in Central Asian fine grain quartz: Implications for provenance study in aeolian environments (***Best Poster Award: UK Luminescence and ESR Dating Conference, 2019, Roskilde, Denmark***)

Dave, A.K., Lisa, L., Timar-Gabor, A., Scardia, G., Fitzsimmons, K.E., **2019**. Quaternary aeolian climate-landscape dynamics in Central Asia: Reconstructing timing and loess formation processes using luminescence and electron spin resonance techniques (16th Urbino Summer School on Palaeoclimatology, Urbino, Italy)

Dave, A.K., Courty, M.A., Fitzsimmons, K.E., Singhvi, A.K., **2017**. Archaeological and chronological constraints on the contemporaneity of a mighty river and the Harappans (***Nicholas Copernicus Award; 15th International LED Conference, Cape Town, South Africa***).

Dave, A.K., Subramanayan, J., **2012**. Monitoring Urease activity in Decoated pigeon pea seeds (International Symposium on Green Chemistry and Sustainable Development, University of Delhi, India)

Date: 09 June 2023

Name: Dr. Aditi Krishna Dave

Signature: