**Curriculum Vitae**

**Dr. PRATIK KUMAR DAS**

INSPIRE FACULTY Fellow, IIEST Shibpur, Howrah, Kolkata, India

Guest Research Associate | Zurek's Group | SUNY Buffalo, NY, USA

Guest Researcher | CEED | University of Oslo, Norway

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**Professional Distinctions:**

* INSPIRE FACULTY Fellow, Indian National Science Academy (INSA), 2020
* Newton – Bhabha Fellow, DST & British Council (2016 – 2017)
* INSPIRE Fellow, DST, Govt. of India (2013 – 2019) (awarded to top 1% students in M.Sc)
* National Eligibility Test (NET), CSIR, Govt. of India, 2012 ( Eligibility test for University faculty position)
* INSPIRE-SHE Scholar, DST, Govt. of India (2007 – 2012) (awarded to top 1% students in the qualifying examination)

**Academic Background:**

* **Ph.D**, *Physical behavior of silicates and oxides under extreme conditions: A first-principles approach*, with Prof. Nibir Mandal, Jadavpur University, 2018
* **M.Sc**, Physics, First class, Jadavpur University, 2012
* **B.Sc**, Physics (Mathematics and Chemistry) First class, Jadavpur University, 2010

**Professional background:**

* INSPIRE FACULTY, Assistant Professor

Department of Earth Sciences, IIEST Shibpur, Howrah, India 04/2022 –

* Guest Research Associate

Zurek’s Group, Department of Chemistry, SUNY Buffalo, Buffalo, USA 03/2022 – till date

* Postdoctoral Research Associate 10/2021 – 03/2022

Zurek’s Group, Department of Chemistry, SUNY Buffalo, Buffalo, USA

* Guest Researcher 01/2020 – till date

Center for Earth Evolution and Dynamics (CEED), University of Oslo, Oslo, Norway.

* Researcher 01/2019 – 01/2020

Center for Earth Evolution and Dynamics (CEED), University of Oslo, Oslo, Norway.

* Senior Research Fellow 12/2017 – 12/2018

Prof. Nibir Mandal’s Laboratory, Faculty of Science, Jadavpur University, Kolkata, India.

* Newton – Bhabha Fellow 09/2017 – 12/2017

Prof. Brodholt’s Group, Department of Earth Sciences, University College London, UK.

* Senior Research Fellow 03/2016 – 08/2017

Prof. Nibir Mandal’s Laboratory, Faculty of Science, Jadavpur University, Kolkata, India.

* Junior Research Fellow 03/2014 – 02/2016

Prof. Nibir Mandal’s Laboratory, Faculty of Science, Jadavpur University, Kolkata, India.

* Project Assistant, MoES (Govt. of India) 11/2012 – 2/2014

Prof. Nibir Mandal’s Laboratory, Faculty of Science, Jadavpur University, Kolkata, India.

**Publications:**

1. Das, P.K., Mondal, S.K., Mandal, N., Arya, A., (2023) p-T-dependent structural transformations of Zn-monochalcogenides to switch their semiconductor–metal transition: a DFT study. Appl. Phys. A 129, 497. DOI:10.1007/s00339-023-06777-w
2. **Das, P. K.**, Mondal, S. K., Mandal, N., (2021) First principles prediction of exceptional mechanical and electronic behaviour of Titanite (CaTiSiO5). Materialia 15, 100964. DOI:10.1016/j.mtla.2020.100964
3. **Das P. K.**, Mohn C. E., Brodholt J. P., Trønnes R. G., (2020) High pressure silica phase transitions: implications for deep mantle dynamics and silica crystallization in the proto-core. American Mineralogist. DOI: 10.2138/am-2020-7299
4. Mondal S. K., **Das, P. K.**, Mandal, N., Arya, A., (2020) A novel approach to quantify the structural distortions of U/Th snub-disphenoids and their role in zircon to reidite type phase transitions of uranothorite, *arXiv:* ***1907.05115***. Journal of Physics: Condensed matter. DOI:10.1088/1361- 648X/ab60e4
5. **Das, P.K.**, Mandal, N., Arya, A., (2017) Effects of cation ordering on the elastic and electronic properties of Mg-Fe silicate phases at high pressures, J. Appl. Phys.**122**, 225107. DOI: 10.1063/1.5001884
6. **Das, P.K.**, Mandal, N., Arya, A., (2017) Effects of Fe substitution on B3-B1 phase transition and structural, vibrational, and electronic properties of ZnS from DFT calculations, J. Appl. Phys. **121**, 08510. DOI: 10.1063/1.4976813
7. **Das, P.K.**, Chowdhury, A., Mandal, N., Arya, A. (2016) First-principles characterisation of the pressure-dependent elastic anisotropy of SnO2 polymorphs, Phil. Mag. **96**:18, 1861. DOI:10.1080/14786435.2016.1177228

**Article(s) under preparation:**

1. Thermoelasticity of Silica: Implications towards seismic discontinuity near CMB, **Das P.K.**, Mohn C.E., Brodholt J.
2. Ultrahigh pressure olivine phases, analogous to super Earth mantle, Han S., **Das P.K.**, Zurek E., Duffy T.
3. Low pressure room temperature superconductivity in ternary hydrides, Das P.K., Geng N., Zurek E.

**Computational Skills:** Language: FORTRAN, C, Matlab, Python

Ab initio code: Quantum Espresso, VASP, CASTEP, ElaStic, Phonopy.

**Membership:**

European Association of Geochemistry

**Conference & workshops:**

**Kathmandu summer school on ab-initio simulations of solid,** (organized by Tribhuvan University, Kathmandu, Nepal and ICTP, Trieste, Italy), Tribhuvan University, Kathmandu (2013)

**National Workshop on Modern Geological and Geophysical Methods and their Applications,** (organized by IGU & Jadavpur University), Jadavpur University (2013)

**EGU General Assembly**, (Organised by European Geosciences Union), Vienna, Austria (2016)

**15Th USPEX Workshop,** Workshop on crystal structure prediction with USPEX code, (Organised by Skolkovo Insititute of Science and Technology, Moscow), Moscow, Russia (2018)

**Goldschmidt conference,** (Organised by European Association of Geochemistry), Barcelona, Spain (2019).

**VASP-Aiida Workshop,** (Organised by Uninett Sigma2 and University of Oslo), University of Oslo, Oslo, Norway (2019).

**Invited talks:**

* Silica phase transition under DEEP Earth conditions, CEED Christmas Symposium, 2019, Norway.
* Minerals behaviour under extreme conditions: A DFT approach, IC-RAPMS-2020, St. Joseph's College, Darjeeling, India.
* Minerals Physics: a Tool to explain Geophysical observation, Cotton University, Assam, India.

Place: Howrah

Date:28/08/2022 Dr. Pratik Kumar Das