

Dr. Nafis Ul Haque

Associate Professor

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<https://myd.neduet.edu.pk/node/22> , <https://scholar.google.co.uk/citations?user=oNHC-qQAAAAJ&hl=en>



Academic Qualification

- **Ph.D.** (Materials Science & Engineering, 2018), School of Chemical and Process Engineering, University of Leeds, United Kingdom
Research Topic: Disorder Trapping in Rapidly Solidified Intermetallic Compounds
- **M. Eng.** (Materials Engineering, 2010), Department of Materials Engineering, NED University of Engineering & Technology, Karachi, Pakistan
- **B. Eng.** (Metallurgical and Materials Engineering, 2006), Department of Metallurgical & Materials Engineering, Mehran University of Engineering & Technology, Jamshoro Sindh, Pakistan
- **H.S.S.C & S.S.C**, 2002, Karachi Board

Professional Experience

1. **Associate Professor** (4th August 2020 – Present) at Department of Metallurgical Engineering, NED University of Engineering & Technology, Karachi, Pakistan
2. **Teaching Assistant** (1st October 2014 – 30th September 2017) at School of Chemical and Process Engineering, University of Leeds, United Kingdom
3. **Assistant Professor** (10th April 2012 – 3rd August 2020) at Department of Metallurgical Engineering, NED University of Engineering & Technology, Karachi, Pakistan
4. **Lecturer** (10th November 2006 to 9th April 2012) at Department of Materials & Metallurgical Engineering, NED University of Engineering & Technology, Karachi, Pakistan
5. **Maintenance Engineer** (16th March 2006 – 31st October 2006) at Ahmed Foods Private Ltd.
6. **Internship** (2nd June – 2nd July 2004) at Peoples Steel Mills Ltd.
 - Scrapyard Workshop (Charge-calculation)
 - Steel Making Shop (Electric Arc, Ladle, ESR and Vacuum Degassing Furnace)
 - Continues Casting
 - Forging Shop
7. **Internship** (9th June 2003 – 8th July 2003) at Karachi Shipyard & Engineering Works Ltd.
 - Foundry Shop (Sand Casting, Pattern Making, Cupola Furnace)
 - Maintenance Workshop
 - Inspection and Control Workshop

Awards/Honors

- **UK Alumni Awards** – 2022 – Finalists - Science and Sustainability Category
- **Best Publication Research Award** – 2021, NED University of Engineering & Technology, Karachi – Pakistan
- **Best Publication Research Award** – 2019, NED Alumni Association of Southern California, United State of America
- **Nominated for The Henry Marion Howe Medal**, 2017, ASM, International - American Society for Metals
- **Postgraduate Scholarship**, 2014 – 2018, HEC Pakistan & University of Leeds, University of Leeds, United Kingdom

Research Grants

- **NRPU Award** – 2021, National Research Program for Universities, HEC Pakistan (2017050/NRPU/R&D/HEC/2021)
- **Research Seed Fund Award** – 2020, NED University of Engineering & Technology

Research Interests

- Microstructural development and control in conventional, novel and non-equilibrium processing, in particular of Metallic Materials
- Solidification, Melting & Casting
- Materials Synthesis
- Nanomaterials
- Engineering Materials
- Development of Alloys (Intermetallic compounds, Iron & steel and cast iron)
- Development of tools and techniques for the Characterisation Techniques

Publications

1. **N. Haque**, R.F. Cochrane, A.M. Mullis, Rapid solidification morphologies in Ni₃Ge: Spherulites, dendrites and dense-branched fractal structures, *Intermetallics*, 76 (2016) 70-77. (I.F = 3.420) <https://doi.org/10.1016/j.intermet.2016.06.012>
2. **N. Haque**, R.F. Cochrane, A.M. Mullis, Morphology of Spherulites in Rapidly Solidified Ni₃Ge Droplets, *Crystals*, 7 (2017) 100. (I.F = 2.144) <https://doi.org/10.3390/cryst7040100>
3. **N. Haque**, R.F. Cochrane, A.M. Mullis, Disorder-order morphologies in drop-tube processed Ni₃Ge: Dendritic and seaweed growth, *Journal of Alloys and Compounds*, 707, 327-331, (2017). (I.F = 6.371) <https://doi.org/10.1016/j.jallcom.2016.11.080>
4. **N. Haque**, R.F. Cochrane, A.M. Mullis, The Role of Recrystallization in Spontaneous Grain Refinement of Rapidly Solidified Ni₃Ge, *Metallurgical and Materials Transactions A*, 48 (2017) 5424-5431. (I.F = 2.556) <https://link.springer.com/article/10.1007/s11661-017-4290-8>
5. **N. Haque**, R.F. Cochrane, A.M. Mullis, Morphology of Order-Disorder Structures in Rapidly Solidified L1₂ Intermetallics, in: *TMS Annual Meeting & Exhibition*, Springer, 2017, pp.729- 736. https://link.springer.com/chapter/10.1007/978-3-319-51493-2_70
6. **N. Haque**, R.F. Cochrane, A.M. Mullis, Order-disorder morphologies in rapidly solidified ε/ε'-Ni₅Ge₃ intermetallic, *Journal of Alloys and Compounds*, 739, 160-163 (2018). (I.F = 6.371) <https://doi.org/10.1016/j.jallcom.2017.12.253>
7. **N. Haque**, R. Cochrane, A. Mullis, Mechanical properties of rapidly solidified Ni₅Ge₃ intermetallic, in: *TMS Annual Meeting & Exhibition*, Springer, 2018, pp. 705-714. https://link.springer.com/chapter/10.1007/978-3-319-72526-0_66

8. **N. Haque**, A.M. Mullis, Order-disorder morphologies in rapidly solidified Ni₃Ge intermetallic, JOM – Journal of the Minerals, Metals & Materials Society, 71(8) June **2019**. (I.F = **2.471**) <https://doi.org/10.1007/s11837-019-03587-5>
9. N. Hussain, A.M. Mullis, **N. Haque**, Effect of Cooling Rate on the Microstructure of Rapidly Solidified SiGe, Materials Characterization, Volume 154, August **2019**, Pages 377-385. (I.F = **4.361**) <https://doi.org/10.1016/j.matchar.2019.06.014>
10. **N. Haque**, A.M. Mullis, Existence of seaweed structures in rapidly solidified Ni₃Ge intermetallic, Journal of Alloys and Compounds, Volume 801, 15 September **2019**, Pages 640- 644. (I.F = **6.371**) <https://doi.org/10.1016/j.jallcom.2019.06.050>
11. A.M. Mullis, **N. Haque**, Evidence for dendritic fragmentation in as-solidified samples of deeply undercooled melts, Journal of crystal growth, Volume 529, 1 January **2020**, 125276. (I.F = **1.797**) <https://doi.org/10.1016/j.jcrysgro.2019.125276>
12. **N. Haque**, O. E. Jegede, A.M. Mullis, Mechanical Properties of Rapidly Solidified Ni₃Ge and Ni₅Ge₃ Intermetallic Compounds, JNN - Journal of Nanoscience and Nanotechnology, Vol. 20, 1–6, **2020** (I.F = **1.354**) <https://doi.org/10.1166/jnn.2020.17865>
13. A.M. Mullis and **N. Haque**, Direct observation of dendrite fragmentation in the solidification of undercooled melts, Journal of IOP Science: IOP Conference series Materials Science and Engineering, 529, 012020 (**2020**). Scopus Cite Score : **0.53** [doi:10.1088/1757-899X/529/1/012020](https://doi.org/10.1088/1757-899X/529/1/012020)
14. **N. Haque**, O. E. Jegede, A.M. Mullis, The development of plate and lath morphology in Ni₅Ge₃, Physics of Metals and Metallography, additional No 14 volume 122 of **2021** <http://link.springer.com/article/10.1134/S0031918X21140106> (I.F = **1.13**)
15. O. E. Jegede, **N. Haque**, A.M. Mullis, R.F. Cochrane, “Solidification transformations in liquid phase separated metastable monotectic Cu – 50 at.% Co alloy”, Canadian Journal of Chemistry, 2021-0064, 14 May, **2021** (I.F = **1.118**) <https://doi.org/10.1139/cjc-2021-0064>
16. O. E. Jegede, **N. Haque**, A.M. Mullis, R.F. Cochrane, “Relationship between cooling rate and SDAS in liquid phase separated metastable Cu–Co alloys”, Journal of Alloys and Compounds, Volume 883, 16 June, **2021**, 160823 (I.F = **6.371**) <https://doi.org/10.1016/j.jallcom.2021.160823>
17. **N. Haque**, O. E. Jegede, A.M. Mullis, Presence of ε and ε crystal structures in rapidly solidified intermetallic compound Ni₅Ge₃, Journal of Alloys and Compounds, Volume 887, 20 December **2021**, 161465 (I.F = **6.371**) <https://doi.org/10.1016/j.jallcom.2021.161465>
18. A.D. Chandio , **N. Haque** , Asif Ahmed Shaikh "Interdiffusion studies of βNiAl bond coats: understanding the Zr, Pt, and Al migration trends and Their Beneficial Effects "MRSK-2021- 066 – Korean Journal of Materials Research, Vol. 31, No. 8, **2021** (I.F = **0.33**) <https://doi.org/10.3740/MRSK.2021.31.8.439>
19. O. E. Jegede, **N. Haque**, A.M. Mullis, R.F. Cochrane, “Thermal transitions in metastable Cu – 68.5 at. % Co alloy” Canadian Journal of Chemistry. **2022** (I.F = **1.118**) <https://doi.org/10.1139/cjc-2021-0228>
20. Anna Churakova, Elina Kayumova, Evgeni Vorobiev and **N. Haque**, “Analysis of the Corrosion Behavior of the TiNi Alloy in the Coarse-Grained State”, Modern Trends in Manufacturing Technologies and Equipment, (**2022**) 229-236 <https://doi.org/10.21741/9781644901755-41>

Reviewers of Journal

- Journal of Alloys and Compounds, Elsevier
- Materials Chemistry and Physics, Elsevier
- Korean Journal of Materials Research, Korea Federation of Science and Technology

Technical Expertise

1. University of Leeds, UK (2014 – 2018)

- **Arc – Melter**
- **Drop – Tube Process** (Induction Melting system, Container less process)
- **Optical Microscope (OM)** - Olympus BX51
- **Scanning Electron Microscope (SEM)** – (1) **Carl Zeiss EVO® MA 15** equipped with Oxford Instruments Aztec Energy EDX system
(2) **Hitachi SU8230**: high performance cold field emission (CFE) SEM with Oxford Instruments Aztec Energy EDX system
- **Electron Backscatter Diffraction (EBSD)** – FEI Quanta 650 FEGSEM with Oxford/HKL Nordlys EBSD
- **X-ray Diffractometer (XRD)** - PANalytical X'Pert Pro
- **Differential Scanning Calorimetry (DSC)** - Perkin Elmer STA 8000 and Lauda Alpha RA 8 Chiller unit
- **Transmission electron microscope (TEM)** - FEI Tecnai TF20
- **Dual beam FIBSEM** - FEI Helios G4 CX Dual Beam
- **In-situ Transmission electron microscope**

2. NED University, Karachi, 2009 – 2014

- Mechanical Testing
- Non-destructive Testing
- Tube Furnace
- Stereo Microscope
- Weld Expert Pro
- XRF – Innovax system
- Spectroscopy

3. Singapore – 2010

- Metallurgical Microscope Image Analysis System and Software 3D analysis Documentation, Olympus

4. Turkey (Bursa) – 2008

- Operation and Maintenance Training with Software (Metallurgical Microscope IMM-901, Grinding polishing, Sample Mounting Machine)

5. Turkey (Ankara) – 2008

- Microprocessor controllable Heat Treatment Furnace, Muffle Furnace, Vacuum Furnace, Sintering Furnace

Laboratory Incharge (2007 – Present)

Strategic in the establishing of following laboratories – NED University of Engineering & Technology

- Metallography Laboratory
- Optical Microscopy Laboratory
- Heat Treatment Laboratory

Teaching Experienced

1. Undergraduate Students

- Foundry: Principles, Methods and Practices
- Physical Metallurgy
- Metallurgical Plant
- Fundamentals of Metallurgical and Materials Engineering
- Design Selection & Characterisation of Engineering Materials

2. Postgraduate Students

- Phase Transformation in Solids
- Production of Ferrous and Non-Ferrous Materials
- Heat Treatment and Microstructure Evolution in Metals

3. PhD Students

- Advance Materials Characterisation Techniques
- Advance Materials and Processes
- Fracture Mechanics and Failure Analysis of Materials

Supervisor - PhD / Master Students

- Two (02) PhD Students (Course work stage)
- Three (03) Masters Students (Thesis writing stage)
- One (01) Masters Student (Completed)

Selected Projects & Thesis Supervised (UG & Master Students)

- To study the problem of adherence of moulding sand mass on cast surfaces of cast iron Sugar Mill Roller – 2022
- To study the causes of high percentage of rejection in Foundry Shop at Karachi Shipyard and Engineering Works Ltd. – 2022
- To analyse, identify and rectify the root cause of chilling behaviour in MF centre housing grey cast iron only at specific location by using different characterisation techniques – 2021
- To study and control leakage of MF cylinder head (grey cast iron casting) – 2021
- Development of shape memory alloys – 2020
- Quenching and Partitioning of Steel – 2020
- To study the electro-chemical properties of as cast alloys (Aluminium alloys 5052 and 6061) – 2020
- Formation of Ni-based intermetallic compound – 2019
- Improvement and characterization of multiple grades of Mild Steel producing in steel making industries of Pakistan – 2019

Training & Certifications

- CIEH Level 2 Health and Safety, **University of Leeds**
- Learning & Teaching Assess Engineering, **University of Leeds**
- Learning & Teaching in Labs Engineering, **University of Leeds**
- Evaluating and Developing Your Own Teach, **University of Leeds**
- Supervising Taught Student Dissertations, **University of Leeds**
- Professional Competency Enhancement Program for University Teachers arranged by **Higher Education Commission, Pakistan**
- Training on Project Management (**NED University**)

- Training on "Corrosion Protection Management" (**CCEE**)
- Training on Role of Teacher as Examiner & Invigilator (**NED University**)
- Training on Effective Teaching Practices (**NED University**)
- Certificate of Appreciation on participating on interaction between Industry and Engineering Institutions (**IEP**)
- Certificate of Best Performance in Iron & Steel Society (Steel Making & Processing Technologies), (**MUET University**)

Seminars/Conferences

- 17th International Symposium on Advanced Materials (ISAM-2021) 18-22 October 2021, National Centre for Physics, **Islamabad, Pakistan**
- 1st International Conference on Advances in Material Sciences and Environmental Engineering 2021 (ICAMSEE-2021) at NED University of Engineering & Technology, Karachi – 75270, **Pakistan**
- 3rd international conference on Advanced Materials & Process Engineering – 2019 at NED University of Engineering & Technology, Karachi – 75270, **Pakistan**
- TMS 2019 (The Minerals Materials and Metals Society) 148th Annual Meeting and Exhibition, 10th March 2019, **San Antonio, USA**
- FEMS Junior EUROMAT 2018, 8th July 2018, **Budapest, Hungary**
- 25th International Symposium on Metastable, Amorphous and Nanostructured Materials, 2nd July 2018 **Rome, Italy**
- 24th International Symposium on Metastable, Amorphous and Nanostructured Materials, 20th June 2017, **San Sabastian, Spain**
- TMS 2017 (The Minerals Materials and Metals Society) 146th Annual Meeting and Exhibition, 27th February 2017, **San Diego, USA**
- 23rd International Symposium on Metastable, Amorphous and Nanostructured Materials, 5th July 2016, **Nara city, Japan**
- The 6th annual University of Leeds Postgraduate Research Conference (SHOWCASE 2015), 8th December 2015, **Leeds, UK**
- National Student Conference in Metallic Materials, 23th June 2015, **Manchester, UK**
- National Student Conference in Metallic Materials, 23th June 2014, **Sheffield, UK**

Memberships/ Committees

- **Associate Fellow** UK Professional Standards Framework for Teaching and Learning Support in Higher Education. **Recognition reference: PR136122**
- **Registered Engineer/ Accredited** (Metallurgy & Materials) at Pakistan Engineering Council (PEC), **Registration number METAL/1933**
- **TMS** - The Minerals, Metals & Materials Society, USA – **Professional Member ID: 524717**
- **IOM3** - Institute of Materials, Minerals and Mining, UK – **Professional Member (MIMMM) ID: 683425**
- **Member BOS** (Board of Study), Department of Metallurgical Engineering, NED University
- **Member BOS** (Board of Study), Department of Physics, NED University
- **Member Technical Evaluation Committee** for MYD and MMD, NED University, Karachi
- **Member for Assessment Teams** (AT) for both M. Eng. and Ph.D., NED University Karachi

Countries Visited

Singapore, Germany, Austria, France, Switzerland, Spain, Italy, Hungary, Turkey, Vatican City, Japan, UAE, USA, UK



SCHOOL OF CHEMICAL AND PROCESS ENGINEERING NEWS /// TUESDAY 12 APRIL 2022

Dr Nafis Ul Haque announced as finalist for Study UK Pakistan Alumni Award 2022

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Dr Nafis Ul Haque, a 2018 PhD graduate, has been announced as a finalist for the Study UK Pakistan Alumni Awards 2022 in the category of Science and Sustainability.

The [Study UK Pakistan Alumni Awards 2022](#) celebrate the outstanding achievements of alumni and showcase the impact and value of a UK higher education. Award winners and finalists are leaders in their fields who have used their experience of studying at a UK university to make a positive contribution to their communities, professions and countries.

During his time at Leeds, Nafis' research focussed on materials engineering and in developing new materials, specifically looking at metastable formation in Ni-Ge intermetallic compound.

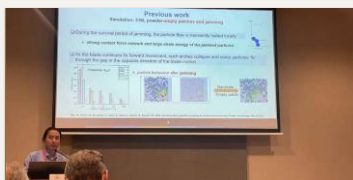
He published journal papers in *Intermetallics*, *Alloys and Compounds*, *Crystals*, and *Metallurgical and Materials Transactions A*, including being shortlisted for the 'Henry Marion Howe Medal' by ASM International, USA in 2017.

Nafis is now an Associate Professor at the [NED University of Engineering and Technology](#) in Karachi, Pakistan.

Further information about the Alumni Awards and finalist profiles will be available shortly on the [British Council Pakistan website](#). The awards ceremony for Pakistan will be taking place on Saturday 26th March at the PC Hotel in Lahore.

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Dr Anuradha R Pallipurath awarded Royal Society Olga Kennard Fellowship

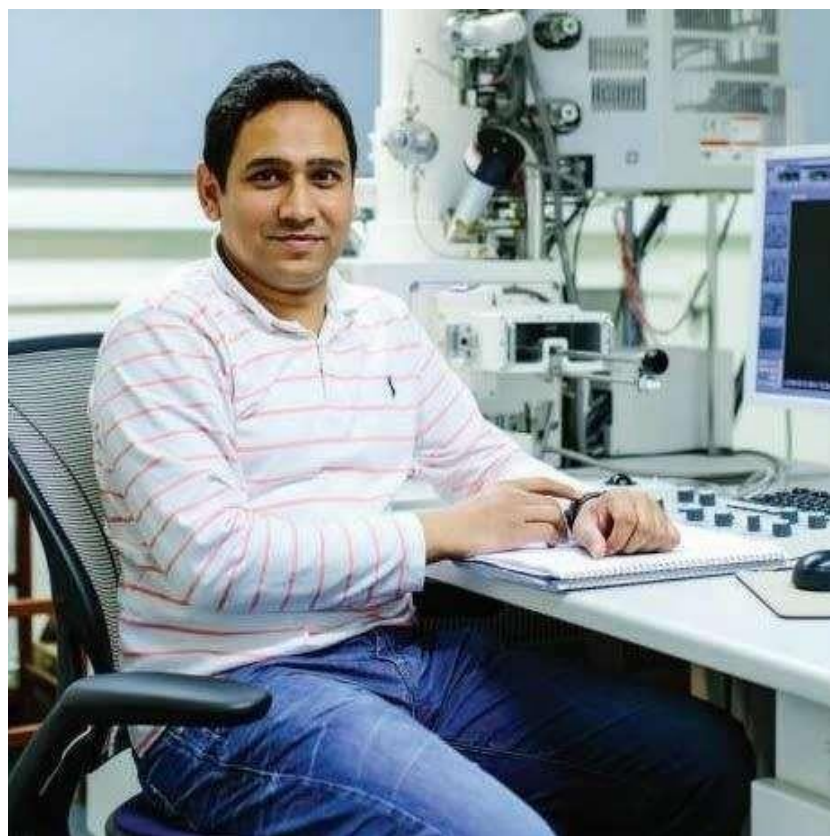
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Professor Bell's group paper wins award from American Ceramic Society

SCHOOL OF CHEMICAL AND PROCESS ENGINEERING - TUESDAY 27 SEPTEMBER

Dr Nafis Ul Haque: Science and Sustainability award finalist



Dr Nafis Ul Haque (PhD Chemical and Process Engineering 2018), an Associate Professor at the NED University of Engineering and Technology in Karachi, Pakistan, is a world leader in his field - at Leeds, he researched developing new materials.

In 2021 he was a finalist for the Study UK Pakistan Alumni Awards 2022 in the category of Science and Sustainability.

[Read about Dr Nafis Ul Haque](#)