

Dr. Chandra Kant Kaithwas

PhD, IIT Kharagpur

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[linkedin.com/in/chandra-kant-kaithwas-8794b450](https://www.linkedin.com/in/chandra-kant-kaithwas-8794b450)**PROFESSIONAL EXPERIENCE:**

- Assistant Professor, Department of Mechanical Engineering, Dr. RML Avadh University (March 2021–Jan 2026)

ACADEMIC CREDENTIALS:

PhD Thesis title “Implications of Thermal and Thermo-Mechanical Processing Induced Microstructural Evolution on Intergranular and Pitting Corrosion Behavior in Alloy 600H”

Degree/course	Year	Institute/School	Division
PhD	2015-21	Indian Institute of Technology Kharagpur	First
M. Tech Metallurgical and Materials Engineering	2013-15	Indian Institute of Technology Kharagpur	First
B. Tech Mechanical Engineering	2007-11	Government Engineering College Ajmer, RTU Kota	First

PROJECTS & GRANTS:

- Student Project Grant:** CST UP Engineering Project Grant Scheme 2023–24 [No.1296] and **secured 3rd Place** in UP-CST Science Exhibition (April 2024) overall in UP for “Gas Leakage Detection System using IoT”

RESEARCH**M. Tech guidance:** Completed – 6**B. Tech guidance:** Completed –15**Journals:** 10**Book: 1, Chapter: 4****Conference: 2 (International), 1(National).****Invited Talk: 2****KEY ACADEMIC PROJECT:**

- PhD thesis title** “Implications of thermal and thermo-mechanical processing induced microstructural evolution on Intergranular and pitting corrosion behavior in Alloy 600H”
- M.Tech thesis on** “Development of the cathode material for sodium-ion batteries”
- B.Tech project on** “Design of multiprope wind mill using power generation”

RESEARCH AREAS / INTERESTS

- Alloy Design and Microstructure Engineering
- Aqueous & High Temperature Corrosion
- Electrochemical Analysis (CV, EIS, DL-EPR)
- Li-ion & Na-ion Battery Materials (Cathode Synthesis, Coin Cells)
- DFT Modeling and Simulation

TECHNICAL SKILLS:

- Material Synthesis & Characterization: Electrochemical material synthesis, XRD, SEM, EDX, EBSD.
- Electrochemical Testing: Potentiostat/galvanostat, CV, EIS, charge/discharge cycling.
- Li-ion Battery Fabrication: Electrode preparation, coin cell assembly, electrolyte preparation.
- Modeling & Simulation: Matlab, Simulink, thermal management simulation.
- Hands-on experience of electron backscattered diffraction (EBSD) data using TSL-OIM software.
- Hands-on-experience Potentiostat (SP 200), double-loop electrochemical potentiokinetic reactivation (DL-EPR), electrochemical impedance spectroscopy (EIS), pitting corrosion, and aqueous corrosion
- Hands-on experience in quenching and deformation 2-hi hot and 4-hi cold rolling mills,
- Instron universal testing machine (Model: 8862)

PATENTS:

- C.K Kaithwas, Priyanka, Akhilesh Kumar, Amarish Shukla, Sumit Kumar Sharama, Parth Patel, Gas Leakage detection system, Design No. no: 461285001, CBR Number : 211954

PUBLICATIONS:

- SK Sharma, KH Kazmi, P Patel, **CK Kaithwas**, P Sharma, M Chandra, Enhancing deposition quality in robotic WAAM of aluminium alloy: the role of deposition angle, Progress in Additive Manufacturing, 10 (2025) 9891–9903, **Impact Factor-5.24, ISSN: 2363-9520**, <https://doi.org/10.1007/s40964-025-01214-1>
- D. K. Rao, **C.K Kaithwas**, Naman Jain, Udayashankar S, Dayanand M. Goudar, Deesy G. Pinto , K Raju Analysis of thermal and dynamic mechanical properties of epoxy bio-composites reinforced with sisal fibers and carbon nanotubes, Scientific Reports, 15 (2025) 37666, **Impact Factor-3.9, ISSN: 2363-9520**, <https://doi.org/10.1038/s41598-025-21546-w>
- **C. K. Kaithwas**, L. Bairi, Y.H. Mazumdar, S. Mandal, On the role of grain size variation on pitting corrosion and passive film behavior of Alloy 600H, Material and Corrosion 74 (2023) 929-942, **Impact Factor-2, ISSN: 1521-4176**, <https://doi.org/10.1002/maco.202213703>
- Saigeeta Priyadarshini, Lavish Kumar Singh, **C. K. Kaithwas**, Shatrughan Soren, A review on Thermo-Mechanical Durability of Glass Fibre/polymer Composites in Water, Macromolecular Symposia, 407 (2023) 2200124, **Impact Factor-1.54 , ISSN:1521-3900**, <https://doi.org/10.1002/masy.202200124>
- **C. K. Kaithwas**, P. Bhuyan, S.K. Pradhan, S. Mandal, “Hall-Petch” type of relationship between the extent of intergranular corrosion and grain size in a Ni-based super alloy, Corrosion Science, 175 (2020) 108868. **Impact Factor-8.5, ISSN: 0010-938X**, doi.org/10.1016/j.corsci.2020.108868
- **C. K. Kaithwas**, P. Bhuyan, S. Mandal, Assessing the potential of sparsely nucleated recrystallized grains to lead grain boundary engineering during extending annealing in Alloy 600H, Materials Characterization, 168 (2020) 110538. **Impact Factor-5.5. ISSN: 1044-5803**, <https://doi.org/10.1016/j.corsci.2020.108868>
- **C. K. Kaithwas**, P. Bhuyan, S. K. Pradhan, Sumantra Mandal, Microstructure evolution during low-strain thermo-mechanical processing and its repercussion on intergranular corrosion in alloy 600H, Materials Characterization, 145 (2018) 582-593. **Impact Factor-5.5. ISSN: 1044-5803**, doi.org/10.1016/j.matchar.2018.09.019
- **C. K. Kaithwas**, T. K. Kundu, Development of High Capacity $\text{Na}_{0.7}(\text{Ni}_{0.4}\text{Mn}_{0.4}\text{Co}_{0.1}\text{Fe}_{0.1})\text{O}_2$ Cathode Material for Sodium Ion Batteries, IOP Conf. Series: Materials Science and Engineering, 75 (2015) 012008. **Impact Factor-0.48. ISSN: 17578981**, DOI 10.1088/1757-899X/75/1/012008
- S. Pradhan, P. Bhuyan, C. K. Kaithwas, S. Mandal, Strain-annealing based grain boundary engineering to evaluate its sole implication on intergranular corrosion in extra-low carbon type 304L austenitic

stainless steel, Metallurgical and Materials Transactions A, 49 (2018) 2817-2831. **Impact Factor-2.55. ISSN 2217-8961**, DOI: 10.1007/s11661-018-4608-1

- C. Prasad, P. Bhuyan, **C. Kaithwas**, R. Saha, S. Mandal, Microstructure engineering by dispersing nano-spheroid cementite in ultrafine-grained ferrite and its implications on strength-ductility relationship in high carbon steel, Materials & Design, 139 (2018) 324-335. **Impact Factor-7.99. ISSN: 0264-1275**, DOI: 10.1007/s11661-018-4608-1

BOOK/ CHAPTER:

- Ratindra Gautam, Shivani Chaudhary, Karnica Srivastava, C. K. Kaithwas, U. B. Singh and A. K. Srivastava, A Comparative Study of Different Types of Nanomaterial-Based Carbon-di-oxide Sensors and Their Diverse Applications, Nanotechnology in Environmental Remediation: Perspectives and Prospects, 2025, 288-305, Benthem science, ISBN : **9781681089718** DOI: 10.2174/9789815322941125010016
- Ratindra Gautam, Asish Kumar, Shivani Chaudhary, **C. K. Kaithwas**, Ajay Kumar Shukla, U. B. Singh, Hydrogen fuel in sustainable transformation, Hydrogen Energy, CRC Press, 2024, eBook ISBN **9781003537816**, DOI 10.1201/9781003537816-15.
- Dinesh Kumar Rao, Pragya Sharma, Vikas Kumar, Pawan Kumar Agarwal, **C.K. Kaithwas**, Introduction to thermoplastic polymer composites: applications, advantages, and drawbacks, "Dynamic Mechanical and Creep-Recovery Behavior of Polymer-Based Composites, Mechanical and Mathematical Modeling, 2024, Elsevier Publication, ISBN: **9780443190094**, <https://doi.org/10.1016/B978-0-443-19009-4.00001-1>

CONFERENCE PROCEEDINGS:

- **Oral presentation** on topic Grain boundary engineering through thermo mechanical processing in super alloy 600H implication in sensitization to intergranular corrosion (**The Minerals, Metals and Materials Society 2018, International Conference**) in Phoenix, Arizona, United State of America (USA).
- **Oral presentation** on topic Effect of grain boundary engineering on the susceptibility to intergranular corrosion evaluated through optimized DL-EPR test in alloy 600H in NMD-2017 in (**NMD National conference 2017**) Goa, India.
- **Oral presentation** on Grain boundary engineering through thermo mechanical processing in super alloy 600H in (**RSD 2017**) IIT Kharagpur, India.
- **Oral presentation** on Synthesis of Cathode material for Sodium Ion Battery in NCPCM-2014 (National Conference) Rourkela, India.

PERSONAL DETAILS:

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Date (Chandra Kant Kaithwas)