Udaya Bhat K
Professor

Address: Dept of Metallurgical and Materials Engg
NITK Suratkal, 575 025**.**
0824-2474000, ext 3050/3761.
email:udayabhatk@gmail.com,

Educational Qualifications:

B E (Metallurgical Engg) from NITK (formerly KREC), Mangalore University, 1992.

M E (Metallurgy) from Indian Institute of Science, Bangalore 1994.
Thesis title: "Laser Surface Treatment of Al-SiCp Composites"

MBA (Marketing Management) from IGNOU, New Delhi, 2002.
Thesis title: "A Study on Technology Selection and Management for Rural Areas"

Ph D: From Indian Institute of Science, Bangalore, 2008.
Thesis title "Studies on Dissimilar Metal Welding".

Professional Experience:

Sl No	Organisation	Duration	Position	Responsibilities
1	NITK Surathkal	March 10, 2015	Assoc Professor (AGP 9,500)	Teaching, Research, Consultancy
1	NITK Suratkal	Feb 11-Feb 15	Assoc Professor (AGP 9,000)	Teaching, Research, Consultancy
2	NITK Suratkal	June'08 –Feb'11	Asst Professor	Teaching, Research, Consultancy
3	NITK Suratkal	Feb'08-May'08	Sel Grade Lecturer	Teaching, Research, Consultancy
4	NITK Suratkal	Feb'03-Feb'08	Senior Lecturer	Teaching, Research, Consultancy
5	NITK Suratkal	Feb '98-Feb '03	Lecturer	-do-

Research projects involved:

1. Intra NIT (NITK Surathkal and NIT Tiruchy) research project on "High Temperature Wear and Corrosion Studies of Al-TiB_2 and Al-ZrB_2 Insitu composites", in 2008.

2. Coordinator for DST-FIST project on Transmission Electron Microscopy, (SR/FST/ETI-257/2009 dtd 13-01-2010)

3. Coordinator for DST-FIST project on 'Strengthening the Research Facilities in the Department', SR/FST/ETII/2017/97 (c) dtd 13/03/2018. Rs. 297 lakhs.

4. Laser Shock Peening technique for surface treatment of welded SS parts; Sponsor: Institute for Plasma Research, (Role:Co-PI) Amount. Rs. 15.24 lakhs (NFP2010-11/AUG/04 dtd 10-09-10)

5. Friction Stir Processing of Steels for Surface Alloying and Wear Resistance, Sponsor: Ministry of Defence - Naval Research Board, Role: PI, Amount: Rs. 7,95,800=00 (DNRD/05/4003/NRB/211 dtd 23-05-2011)

6. Development of copper coatings on 316 stainless steels for antimicrobial applications: KSCST, IISc., Bangalore, 42S_BE_1854 (2018-19): Rs. 7,500/-

7. Centre of Excellence for Development of Antimicrobial Active Surfaces for Health Care Applications (GRD-639): VGST, Govt of Karnataka. Amount 60,00,000. Duration 2019-21.

8. Surface integrity studies during milling of magnesium alloys used in aerospace applications for improved functional performance (ARDB/01/2031909/M/I dtd 16th May 2019, Amount :12.939 lacs, (Role CoPI), (PI Dr. Srinivasa Pai P)

Areas of interest: Dissimilar metal welding, Surface Engineering, Rapid solidification, Electron Microscopy.

Patent details:

Naveen Bharadishettar, **Udaya Bhat K**: A new method to produce a highly efficient antimicrobial copper oxide films as intervention against hospital associated bacterial infections: **Submitted for prior art search**

Raghul A, **Udaya Bhat K** Sridhar Balaram: TEMP/E1/8768/2019CHE
Method and System for Fabricating a Structure Using Additive Manufacturing Wastes of C300 Maraging Steel : Submission date :08/03/2019

Reviewed International Journals

2022

116 Vikas Marakini, Srinivasa Pai P, **Udaya Bhat K**, Dinesh Singh Thakur, Bhaskara P Achar, Effect of high speed dry face milling on surface integrity characteristics of AZ91 Mg alloy, J of Materials Engineering and Performance, 2022, 1-9, https://doi.org/10.1007/s11665-022-07187-4

115. Vikas Marakini, Srinivasa Pai P, **Udaya Bhat K**, Dinesh Singh Thakur, Bhaskara P Achar, High speed face milling of AZ91 Mg alloy: Surface integrity investigations. International Journal

of Lightweight materials and Manufacture. V5, No 4, Dec 2022, p528-542, https://doi.org/10.1016/j.ijlmm.2022.06.006

114. Ashok Kumar P, Merbin John, **Udaya Bhat K**, Pradeep L Menezes, Advanced high strength steels for automotive applications: Welding processes, properties and challenges: Metals, 2022, 12, 1051, https://doi.org/10.3390/met.2061051

113.Vikas Marakini, P Srinivasa Pai, **K Udaya Bhat**, Dinesh Singh Thakur, Bhaskar P Achar, Enhancing the surface integrity characteristics of Al-Li alloy using face milling, Materials letters, 324, 2022, 132610. https://doi.org/10.1016/j.matlet.2022.132610

112. Akhil Kishore, Merbin John, Alessandro M Ralls, Subin Antony Jose, **Udaya Bhat Kuruveri**, Pradeep L Menezes, Ultrasonic nanocrystal surface modification: Processes, characterisation properties and applications, nanomaterials, 2022, 12, 1415, https://doi.org/10.3390/nano12091415

111. Merbin John, Orlando Diaz, Andres Esparza, Aaron Fliegler, Derek Ocenosak, Carson Van Dorn, **Udaya Bhat K**, Pradeep L Menezes, Welding techniques for high entropy alloys, Processes, properties, characterization, and Challenges, materials, 2022, 15, 2273, https://doi.org/10.3390/ma15062273

110. Sudhish.R and **Udaya Bhat.K**, Microstructure evolution in Al 6061 coating deposited on Al 2024 substrate by friction surfacing, Materials Today Communications, 2022, 31, 103354, https://doi.org/10.1016/j.mtcomm.2022.103354

109. D Satish Kumar, S Manjini, **K Udaya Bhat**, Optimisation of annealing parameters for ferritic hot rolled IF grade steel, Metallography, microstructure and analysis, 2022, 1-9 https://doi.org/10.1007/s13632-022-00821-6.

108. Naveen Bharadishettar and **Udaya Bhat K**, Degradation response and bioactivity assessment of antimicrobial copper coatings in simulated hand sweat environment, Materials Letters, 2022, 314, 131850, https://doi.org/10.1016/j.matlet.2022.131850

107. **Udaya Bhat K**, Devadas Bhat P, Spandana Bhat K, Merbin John, Pradeep L Menezes, Surface modification of 6xxx series Al alloys, Coatings, 2022, 12, 180, https://doi.org/10.3390/coatings12020180

106. Prabukumar C, Sunil Meti, **Udaya K Bhat**, Enhancing the electrochemical performance of ZnO anode by novel additive of MoS2-SnO2 nanocomposite for the zinc alkaline battery applications, J Mater Sci, Mater Electr, v33, (295), 2534 – 2549. https://doi.org/10.1007/s10854-021-07460-7

105. Vikas Marakini, Srinivasa Pai P, **Udaya Bhat K**, Dinesh Singh Thakur, Bhaskar P Achar, High speed machining for enhancing the AZ91 magnesium alloy surface characteristics: Influence and optimization of machining parameters, Defence Science Journal, Jan 2022, v 72 (1), 105-113, doi:10.14428/dsj.72.17049

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104. Merbin John, Alessandro M Ralls, Scott C Dooley, Akhil Kishore V T, Ashok Kumar P, **Udaya Bhat K**, Pradeep L Menezes, Ultrasonic surface rolling process: Properties,

characterization and applications, applied sciences, 2021, 11, 10986, https://doi.org/10.3390/app112210986

103. Sunil Meti, H P Sagar, M R Rahman, **Udaya Bhat K**, Assessment of triboelectricity in colossal surface area lanthanum oxide nanocrystals synthesized via low temperature hydrothermal process, Journal of Materials Science Materials in Electronics, 2021, 32, 20351-20361, doi:10.1007/s10854-021-06545-7

102. Satish Kumar D, Manjini S, **Udaya Bhat K**, Thermomechanical simulation of ferritic rolling of Ti-Nb interstitial free steel, Materials Performance and Characterisation, 2021, 10 (1), 569-584, https://doi.org/10.1520/MPC20210040

101. Naveen Bharadishettar, **Udaya Bhat K**, Devadas Bhat P, Coating technologies for copper based antimicrobial active surfaces-A perspective review, Metals 2021, 11, 711, p1-27, https: //doi.org/10.3390/met11050711

100. B Shivamurthy, S Anandhan, **K Udaya Bhat**, B H S Thimmappa, Thermal and flammability properties of glass fiber MWCNT epoxy multilayered laminates, Trans Electr Electron Mater., March 2021, https://doi.org/10.1007/s42341-021-00310-7.

99. B R Thammaiah, Chandru D Fernando, Anuradha Nayak Majila, A R Anilchandra, **Udaya K Bhat,** C M Manjunatha, High strain rate bahavior of GTM – 900 Titanium alloy, Materials and Performance, 2021, https://doi.org/10.1520/MPC20200157.

98. Devadas Bhat P, **Udaya Bhat K**, Corrosion characteristics of metal matric composites, Encylopedia of Materials: Composites, 01/07/2021, v1, 442-453

97. Pavan Ompraksash, **Udaya Bhat K**, Devadas Bhat P. Carbon and metallic based nanomaterials for strain sensors – a review, Current Nanomaterials, v 6, 2021.

96. Sagar H Prutvi, Sunil Meti, **K Udaya Bhat**, Deepti Gupta, Triboelectric effect based self powered compact vibration sensor for predictive maintenance of industrial machines, Measurement Science and Technology, 2021, https://doi.org/10.1088/1361-6501/abe6d2

95. Bharath Singh Padya, Abhijeet Pandey, Muralidhar Pisay, K B Koteshwara, Raghu Chandrashekhar Hariharapura, Kuruveri **Udaya Bhat**, Swat Biswas, Srinivasa Mutalik, Stimuli Responsive and Cellular targeted nanoplatforms for multimodal therapy of skin cancer, European journal of Pharmacology, v 890, 5 Jan 2021, 173633, https://doi.org/10.1016/ejphar.2020.173633 (IF 3.26)

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94. M S Nandana, **Bhat K Udaya**, C M Manjunatha, Effect of microstructure on the fatigue crack growth behaviour in Al-Zn-Mg-Cu alloy. Structural Integrity Assessment, 545-554, https://doi.org/10.1007/978-981-13-8767-8_46

93. Shivamurthy B, S Anandhan, **K Udaya Bhat**, B H S Thimmappa, Structure -Property relationship of glass fabric /MWCNT/epoxy multilayered laminates, Composite Communications, 22, 2020, 100460 (9 pages), https://doi.org/10.1016/j.coco.2020.100460

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91. C Prabukumar, **Udaya Bhat K**: Beneficial effect of Manganese (II) ions on the morphology of polyol synthesized silver nanowires, Electronic Materials letters (J No 13391), article 211.https://doi.org/10.1007/s13391-020-0211-6

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87. GK Manjunath, GVP Kumar, **K Udaya Bhat** : Evolution of tribological properties of castAl-10Zn-2 Mg alloy subjected to severe plastic deformation, Structural Integrity Assessment, 2020, 165-175. https://doi.org/10.1007/978-981-13-8767-8-13

2019

86 G K Manjunath, G V Preetham Kumar, **K Udaya Bhat**, Evolution of tribological properties of cast Al-10Zn-2Mg alloy subjected to severe plastic deformation, in Structural Integrity Assessment, in –165-175, 2019, ed: R Prakash, Suresh Kumar R, Nagesha A, Sasikala G, Bhaduri A), https://doi.org/10-1007/978-981-13-8767-8_13

85. Prashanth Huilgol, K Rajendra Udupa, **Udaya Bhat K**, Microstructural investigations on the hot dip aluminized AISI 321 stainless steel after diffusion treatment, Surface & coatings Technology, 2019, 375, 544-553, https://doi.org/10.1016/j.surfacoat.2019.07.31

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81. C Prabukumar, M Mohamed Jaffer Sadiq, D Krishna Bhat, **K Udaya Bhat**, SnO_2 nanoparticles functionalized MoS_2 nanosheets as the electrode material for supercapacitor applications, Materials Research Express, v6, no 8, 085526 https://dx.doi.org.10.1088/2053-1591/ab2200

80. Arun Augustin, K Rajendra Udupa, **K Udaya Bhat**, Characterization of DC Magnetron Sputtered Copper thin Films on Aluminium Touch Surface, Trans Ind Inst Met, 72 (6), 1683-1685, 2019, https://doi.org/10.1007/s12666-019-01714

79. Prashanth Hulgol, K Rajendra Udupa, **Udaya Bhat K**: Hot corrosion resistance of hot dip aluminized AISI stainless steel in a salt mixture of 60% V2O5 +40%Na2SO4 at 700 C, Trans of Indian Inst Met, March 2019, v72, p1613-1616, https://doi.org/10.1007/s12666-019-01653-9

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76. Ramesh Sampath, Hanumanthappa Shivananda Nayaka, Kerekere Rangaraju Gopi, Sandeep Sahu, **Udaya Bhat Kuruveri**, Investigation of microstructure and mechanical properties of the Cu-3% Ti alloy processed by multiaxial cryoforging, J of Materials Research, 33, 3700-3710, 2018, https://doi.org/10.1557/jmr.2018.253 (IF 2.5)

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74. Nandana M S, **Udaya Bhat K** and C M Manjunatha, Effect of microstructure on the fatigue crack growth behavior in Al-Zn-Mg-Cu alloy, ICONS 2018, lecture notes in Mechanical Engineering. P 545-554, ed Raghu Prakash et el.

73. G K Manjunath, G V Preetham Kumar, **K Udaya Bhat** and Prashanth Huilgol: Microstructure and mechanical properties of cast Al-5Zn-2Mg alloy subjected to Equal Channel Angular pressing, Journal of Materials Engineering and Performance, v27, No 11, 5644-5655, https://doi.org/10.1007/s11665-018-3691-1

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71. G K Manjunath. **K Udaya Bhat**, G V Preetham Kumar, M R Ramesh, Microstructure and wear performance of ECAP processed cast Al-Zn-Mg alloys, Transactions of the Indian Institute of Metals (71/8, May, 2018), 1919-1931, h ttp:s//doi.org/10.1007/s12666-018-1328-6 (Scopus IF=0.8)

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2017

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List of Ph.D guidance:

1. Prakruthi S (Full time) (along with Dr. K.R. Udupa): Topic: Friction stir processing of Al-Ni and Al-Fe for surface composites: Registration: 14-07-2008. **Defense: Aug 2015**
2. N Jegadeeshwaran (Part time, MT09P01) (along with Dr. Ramesh, Reva inst): Topic: Studies on the role of HVOF coatings to combat hot corrosion, oxidation, and erosion of materials used in turbine components, Registration: Aug 2009.**Defense: Oct 2014**
3. B Shivamurthy (Part time, MT09P03) (along with Dr. Anandhan S): Topic: Structure property relationship of Glass fabric/epoxy composites containing some micro and nanofillers. Registration: Jan 2010, **Defense** : Feb 18, 2015.
4. Aravinda (Full time, CY10F05) (along with Dr. Ramachandra Bhat, Chemistry dept): Topic: Carbon nanocomposite materials for supercapacitor. Registration: Aug 2010: **Defense: Dec 2014**
5. Prashanth H (Full time, MT12F02) (along with Dr. K R Udupa). Topic: Microstructural Investigations on hot dip aluminised and subsequent diffusion treated AISI 321 stainless steel, Registration: Aug 2012. Defense: **02-06-2020**
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7. Jayalakshmi (Full time, MT12F03) (Along with Dr. R. Bhat, Chemistry dept), Topic: Effect of shot peening coverage on microstructural and mechanical properties of the plasma nitride AISI 316L stainless steel: Registration: Jan 2013. **Defense 20-03-2019**
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List of M.Tech thesis guidance (Research)

Rakshitha K (193NT500), Chalcogenide glass for on-chip signal processing (**defense date – 29th October 2021**)