Dr. Yogesh Kumar

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AREAS OF INTEREST

1. Metal Forming Technology
2. Additive Manufacturing
3. Friction Stir Welding

EDUCATION

- **Ph.D**. (2018), Indian Institute of Technology (BHU) Varanasi (UP).
- **M.Tech.** (2010), Madan Mohan Malaviya University of Technology Gorakhpur (UP).
- **B.Tech.** (2006), Madan Mohan Malaviya University of Technology (Gorakhpur (UP).

EXPERIENCE:

- Assistant Professor from 23.01.2020 – till date

EXTERNAL SPONSORED RESEARCH PROJECTS: 2

1. **Project Title:** "*Development of Directed Energy Deposition Gas Metal Arc (DED-GMA) setup for fabricating Aluminium Alloy and Experimental Investigation on the Effect of Process Parameters on Metallurgical and Mechanical Properties of fabricated components*", **Principal Investigator** – Dr. Yogesh Kumar, **Funding Agency**– 'Anusandhan National Research Foundation (ANRF), New Delhi', **Amount**: Rs. 60.59 Lakhs | Start Date: 24.03.2025 | Duration 3 Years | **Status**: Ongoing.

2. **Project Title**: "*Development of Robot-based Incremental Sheet Hydro-Forming Machine*", **Principal Investigator** – Dr. Yogesh Kumar, **Funding Agency**– 'Science and Engineering Research Board (SERB), New Delhi', Amount: Rs. 21.39 Lakhs | 13-01-2021 to 12-01-2023 | 2 Years |**Status**: Completed.

Ph.D. Guidance: 7

1. Abdhesh Kumar (Roll No. 215ME008, Submission date 07.07.2025, Open viva-voce date 24.12.2025), "Development and Characterization of AA7075/ZrO_2/Gr Hybrid Composites through Friction Stir Additive Manufacturing Process". [**Supervisor**: Dr. Yogesh Kumar, **Co-Supervisor**: Dr. Kuntal Maji].

2. Radhe Shyam Bhasker (Roll No. 205ME005, Submission date 15.07.2025, Open viva-voce date 24.12.2025), "Experimental Analysis of Aluminium Alloy AA3003-O Frustums with Constant and Varying Wall Angles by Robot-Assisted Incremental Sheet Forming (RAISF)". [**Sole Supervisor**: Dr. Yogesh Kumar].

3. Amit Kumar Dubey (Roll No. 215ME014, Submission date 22.07.2025, Open viva-voce date 24.12.2025), "Experimental Investigation and Optimization of Process Variables of Abrasive Water Jet Machining for Ti-6Al-4V Alloy". [**Supervisor**: Dr. Yogesh Kumar, **Co-Supervisor**: Prof. Santosh Kumar].

4. Sutanu Misra (Roll No. 185ME01, Submission date 05.08.2024, Open viva-voce date 23.12.2024), "Experimental Investigation on Machinability and Optimization of the Process Parameters during Turning of EN31 and Ti6Al4V under Sustainable Conditions". [**Supervisor**: Dr. Yogesh Kumar, **Co-Supervisor**: Dr. Goutam Paul].

5. Madugula Naveen Srinivas (Roll No. 185ME15, Submission date 21.08.2023, Open viva-voce date 19.04.2024), "Investigation on the Effect of Process Parameters on Metallurgical and Mechanical Properties of Wire Arc Additive Manufactured Aluminium Alloy". [**Sole Supervisor**: Dr. Yogesh Kumar].

6. Rajnish Singh (Roll No. 205ME015, Submission date 20.10.2023, Open viva-voce date 18.04.2024), "Experimental Investigation of the Mechanical and Microstructural Properties of Friction Stir Welded Aluminum Alloys during Indirect Cooling". [**Sole Supervisor**: Dr. Yogesh Kumar].

7. Sujeet Kumar (Roll No. 185ME12, Submission date 07.11.2023, Open viva-voce date 06.03.2024), "Experimental and Numerical Analysis of GTAW Welded Super Duplex Stainless Steel (SDSS) 2507 Thin Sheet". [**Sole Supervisor**: Dr. Yogesh Kumar].

PATENTS: 4 [1 (Published) + 3 (Granted)]

1. Srivastava K., Kumar Y., Kumar A., "*System and Method for Additive Manufacturing by A Robotic Arm for printing ABS and PLA Materials*" at Indian patent office Kolkata, **Application no.** : 202431076272, Filed date 08/10/2024, Publication Date 18/10/2024.

2. Kumar A., Singh R. B., Kumar Y., "Low-Density Steel Alloy and A Method of Fabricating Thereof" at Indian patent office Kolkata, **Patent Number**: 570486, **Application no.** : 202531004435, Filed date 20/01/2025, Publication Date 20/01/2025, Issue date: 09/09/2025.

3. Kumar S., Kumar Y., "*Robot Assisted High Speed Incremental Sheet Hydroforming Machine*" at Indian patent office New Delhi, **Patent Number**: 486952, **Application no.** : 201711011951, Filed date 03/04/2017, Issue date: 21/12/2023.

4. Kumar S., Kumar Y., "*Incremental Sheet Hydroforming Machine*" at Indian patent office New Delhi, **Patent Number**: 561599,**Application no.** : 3312/DEL/2014, Filed date 17/11/2014, Issue date: 28/02/2025.

LIST OF RESEARCH PUBLICATIONS:

1. Kumar, A.; Kumar, Y.; Maji, K.; Kumar, S.; (**Accepted on 03.12.2025, expected online in 2026**). Optimization of FSAM Parameters for Tensile strength and Hardness of AA7075 / 9.4% ZrO_2 / 0.6% Gr Composite using RSM Technique, Progress in Additive Manufacturing.

2. Kumar, A.; Kumar, Y.; Kumar, S.; Forouhandeh, F.; (**Article in Press, expected online in 2026**). Enhancement in the Formability of Copper Sheet in Single Point Incremental Forming Process, International Journal of Materials Engineering Innovation.

3. Pandey, A.; Kumar, Y.; (**Article in Press, expected online in 2026**). Formability Analysis of Aluminium Alloy AA3003O sheets by Optimizing Processing Parameters in Single Point Incremental Forming, International Journal of Materials Engineering Innovation.

4. Kumar, A.; Kumar, Y.; Kumar, S.; Forouhandeh, F.; (2026). Improvement in Formability of Copper Sheet in Single Point Incremental Forming by Combined effects of tool stirring action and optimized forming process parameters, International Journal of Materials Engineering Innovation. Vol. 17, Issue 1, pp. 21-34. https://dx.doi.org/10.1504/IJMATEI.2026.150693.

5. Kumar, A.; Kumar, Y.; Das, A.; (**Article in Press, available online from 25.04.2025**). Probing the wear and corrosion behavior in gas metal arc directed energy deposition of SS316 alloy, Welding International. https://doi.org/10.1080/09507116.2025.2494580.

6. Kumar, A.; Kumar, Y.; Maji, K.; Singh, R.; (2025). Experimental Investigation of the Mechanical Properties of AA7075/ ZrO2/Gr Composite fabricated by Friction-Stir Additive Manufacturing, Rapid Prototyping Journal. Vol. 31, Issue 8, pp. 1705-1719, http://doi.org/10.1108/RPJ-10-2024-0416.

7. Kumar, A.; Kumar, Y.; Maji, K.; (2025). Advancement and Mechanical Performance of Friction Stir Additive Manufactured Al 7075/ZrO_2/Gr Composite, Rapid Prototyping Journal. Vol. 31, Issue 7, pp. 1461-1472, https://doi.org/10.1108/RPJ-08-2024-0366.

8. Misra, S.; Kumar Y.; Paul, G.; Forouhandeh F.; (**2025**). Experimental Investigation of Minimum Quantity Lubrication strategy during Machining of Ti6Al4V Alloy, SAE International Journal of Materials and Manufacturing. Vol. 18, Issue 3, pp. 305 – 318, https://doi.org/10.4271/05-18-03-0022 .

9. Bhasker, R. S.; Kumar Y.; Kumar, S.; Singh R.; (**2025**). Evaluating Cone and Pyramid Frustums with Constant and Varying Wall Angles in Single Point Incremental Sheet Forming, SAE International Journal of Materials and Manufacturing. Vol. 18, Issue 3, pp. 245 – 270, https://doi.org/10.4271/05-18-03-0019.

10. Srivastava, K.; Kumar, Y.; (2025). Development of a Robot-Assisted Fused Deposition Modeling Process for Enhanced Additive Manufacturing, SAE International Journal of Materials and Manufacturing. Vol. 18, Issue 2, pp. 153-168, https://doi.org/10.4271/05-18-02-0011 .

11. Verma, A. K.; Singh, R.; Kumar, Y.; (2025). Microstructural and Tribological analysis of friction stir processed AA6061 reinforced with SiC, Welding International, Vol. 39, Issue 3, pp. 95 – 105, https://doi.org/10.1080/09507116.2024.2423682.

12. Dubey, A. K.; Kumar, Y.,;Kumar, S., (2025). Optimizing Parameters of AWJM for Ti-6Al-4V grade 5 alloy using Grey entropy weight method: A Multivariable Approach, Journal of The Institution of Engineers (India): Series C, Vol. 106, pp. 181-195, https://doi.org/10.1007/s40032-024-01139-8.

13. Kumar, A.; Kumar, Y.; Maji, K.; Kumar S.; (2025). Investigation on Fractographic and Microstructure Evolution in AA7075/ZrO_2/G Multi-layer Laminated Composite Fabricated using Friction Stir Additive Manufacturing Process, Journal of Materials Engineering and Performance, Vol. 34, Issue 16, pp. 17542–17550, https://doi.org/10.1007/s11665-024-10508-4.

14. Srinivas, M. N.; Kumar, Y.; Vimal, K.E.K.; (2025). Investigation of Mechanical Properties and Microstructure Analysis of 5356 Al alloy Thin Plate and Block Fabricated by Directed Energy Deposition-Arc, Journal of Materials Engineering and Performance, Vol. 34, Issue 14, pp. 13834-13844, https://doi.org/10.1007/s11665-024-10254-7.

15. Dubey, A. K.; Kumar, Y.; Kumar, S.; Raja, A. R.; (**2025**). Parametric optimization of AWJM using RSM-Grey-TLBO- based MCDM approach for Titanium Grade 5 Alloy, Arabian Journal for Science and Engineering, Vol. 50, Issue 17, pp. 13693–13711, https://doi.org/10.1007/s13369-024-09500-w.

16. Misra, S.; Kumar, Y.; Paul, G.; Pradhan, B.; (2024). Investigation of sustainable strategies with metaheuristic algorithm on surface roughness, cutting temperature, and chip morphology during

machining of Ti6Al4V alloy, International Journal of Machining and Machinability of Materials. Vol. 26, No. 3, 2024, pp. 223-243, https://doi.org/10.1504/IJMMM.2024.141486.

17. Srinivas, M. N.; Kumar, Y.; Vimal, K.E.K.; Kumar, S.; (2024). Benchmarking the Quality Improvement Strategies of Wire Arc Additive Manufacturing Process using Fuzzy QFD approach, Rapid Prototyping Journal. Vol. 30 No. 5, pp. 876-884. https://doi.org/10.1108/RPJ-08-2023-0278.

18. Kumar, S.; Kumar, Y., Vimal, K.E.K., (2024). Microstructural and Corrosion Behavior of Thin Sheet of Stainless Steel Grade Super Duplex 2507 by Gas Tungsten Arc Welding, SAE International Journal of Materials and Manufacturing. Vol. 17, Issue 2, pp. 135-144, https://doi.org/10.4271/05-17-02-0011

19. Misra, S., Kumar, Y., Paul, G. (2024), Study on Effects of Flow Rate of Coolant During CO2-Assisted MQL Turning of EN31 Steel. Journal of The Institution of Engineers (India): Series C, Volume 105, pp. 41–57, https://doi.org/10.1007/s40032-023-01011-1.

20. Bhasker, R. S., Kumar, Y., Forouhandeh, F. (2024), Assessing the Characterization for Multiple Cones and Cone Portions Utilizing X-Ray Diffraction in Single Point Incremental Forming, SAE International Journal of Materials and Manufacturing, Vol. 17, Issue 1, pp. 39-50, https://doi.org/10.4271/05-17-01-0003.

21. Kumar, S., Vimal, K.E.K., Khan, M.A., Kumar, Y. (2024), A hybrid learning approach for modelling the fabrication of super duplex stainless steel thin joints using GTAW process. International Journal on Interactive Design and Manufacturing (IJIDeM), Volume 18, pages 3001–3014, July 2024, Q1. https://doi.org/10.1007/s12008-023-01413-6.

22. Singh, R., Kumar, Y. (2023), Tribological analysis of cooling tank assisted hybrid friction stir welded 6061 aluminum alloy, Welding International, 37 (9), 507-518, https://doi.org/10.1080/09507116.2023.2258064.

23. Singh, R., Kumar, Y. (2023), Microstructural Analysis of Cooling Tank-Assisted Hybrid Friction Stir Welded Aluminium Alloys: A Novel Approach, Welding International, 37 (8), 445-456, https://doi.org/10.1080/09507116.2023.2251378.

24. Singh, R., Kumar, Y. (2023), Effect of Cooling Tank Embedded Fixture Design on the Thermal Analysis of Friction Stir Welded Aluminum Alloy, Journal of Materials Engineering and Performance, Volume 32, pp. 7215–7224, https://doi.org/10.1007/s11665-022-07649-9.

25. Bhasker R.S., Kumar Y., (2023). Process capabilities and future scope of Incremental Sheet Forming (ISF), Materials Today: Proceedings, Volume 72, Part 3, Pages 1014-1019, ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2022.09.120.

26. Kumar Y., Kumar S., (2019). Analysis and Experiments of Forming Strategies in Incremental Sheet Hydro-Forming to achieve high forming angle, Heliyon, 5(6), E01801, https://doi.org/10.1016/j.heliyon.2019.e01801.

27. Kumar Y., Kumar S., (2018). Analysis of pressure assisted incremental sheet forming process through simulation, International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), ISSN (Print): 2249-6890; ISSN (Online): 2249-8001, volume 8 issue 3, pp. 921-932. (Scopus).

28. Kumar Y., Kumar S., (2018). Analysis of incremental sheet forming process through simulation, International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), ISSN (Print): 2249-6890; ISSN (Online): 2249-8001, volume 8 issue 3, pp. 145-152. (Scopus).

MEMBERSHIP OF PROFESSIONAL BODIES

1. Life Member of I.S.T.E.
2. Life Member Additive Manufacturing Society of India.

REFERENCES

References available upon request.