

N Venkata Reddy

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Department of Mechanical and Aerospace Engineering
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Research Interests:

- ✓ Predictive Modeling for Digital Fabrication
- ✓ Analysis (Numerical, Analytical and Experimental) of Manufacturing processes
- ✓ Development of Integrated Product and Process Design Systems (IPPDS) for various manufacturing processes including Layered/Additive Manufacturing.
- ✓ Sustainable/Circular Manufacturing

EXPERIENCE

Aug 2012 – Till Date	Professor	Dept. Mechanical and Aerospace Engg. IIT Hyderabad
2010 – 2013 <small>(On lien @ IIT Hyderabad during Aug 2012 – July 2013)</small>	Professor	Dept. Mechanical Engg, IIT Kanpur
2006 – 2009	Associate Professor	Dept. Mechanical Engg, IIT Kanpur
1999 – 2005	Assistant Professor	Dept. Mechanical Engg, IIT Kanpur
Sep 1997 – 1998	Visiting Faculty	Dept. Mechanical Engg, IIT Bombay
Feb 1997 – Aug 1997	Asst. Manager	TATA STEEL, Jamshedpur

EDUCATION

- Ph.D.** Mechanical Engineering, *Indian Institute of Technology Kanpur*, 1998
- M.Tech.** Mechanical Engineering, *Indian Institute of Technology Kanpur*, 1992
- B.Tech.** Mechanical Engineering, *Nagarjuna University, India*, 1990

PUBLICATIONS/PATENTS

Patents (Filed)

1. A System for a Sheet Metal Working and a Process Thereof, Indian Patent Application Number: 201941008005, Patent filed on February 28, 2019 (GOI and TATA Steel Supported work)

2. A Method and System to Fabricate a Component using Additive Manufacturing and Deformation Unit, Indian Patent Application no: 201941016062, Patent filed on April 23, 2019 (provisional) and June 10, 2020 (final).
3. Tool for Enhanced Accuracy in Double Sided Incremental Forming, US Patent Filing # 16/778005, Patent filed on January 31, 2020 (Boeing supported work, Filed by Boeing).
4. Multimode Anti-buckling Device for Evaluating Bauschinger Parameter for Tension-Compression Cyclic Test, Indian Patent Application No. 202031012820 filed on March 24, 2020 (Filed by Tata Steel, external PhD Student from Tata Steel)

Books/Proceedings/Book Chapters

1. Proceedings of National Symposium on Manufacturing Engineering in Twenty First Century, March 2-3, 2001, IIT Kanpur, Edited by: P. C. Pandey, **N. V. Reddy** and V. Raghuram.
2. Fundamentals of Design and Manufacturing , G. K. Lal, Vijay Gupta and **N. V. Reddy**, Narosa Publishers, New Delhi (2005) (reprint: 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014,2015)
3. Introduction to Engineering Plasticity, G K Lal, **N V Reddy**, Narosa Publishers, New Delhi. (2009)
4. Modelling Techniques for Metal Forming, G K Lal, N V Reddy, **N V Reddy**, Narosa Publishers, New Delhi (2011).
5. Incremental Sheet Metal Forming, **N V Reddy**, R Lingam, J Cao, Handbook of Manufacturing Engineering and Technology, Springer, 2015.
6. Materials in Metal Forming, S Idapalapati, S Xu, **N V Reddy**, F Pahlevani, N Srikanth, K R Narayanan, M Zarinejad, Handbook of Manufacturing Engineering and Technology, Springer, 2015

Papers in Refereed Journals

1. **Reddy, N. V.**, Dixit, P. M., and Lal, G. K, 1995, Die Design for Axisymmetric Extrusion, *Journal of Materials Processing Technology*, V55, 331-339.
2. **Reddy, N. V.**, Dixit, P. M., and Lal, G. K, 1996, Central Bursting and Optimal Die Profile for Axisymmetric Extrusion, *ASME Journal of Manufacturing Science and Engineering* (formerly Journal of Engineering for Industry), V118 , 579-584.
3. **Reddy, N. V.**, Sethuraman, R., and Lal, G. K, 1996, Upper Bound and Finite Element Analysis of Axisymmetric Hot Extrusion, *Journal of Materials Processing Technology*, V57, 14-22.
4. **Reddy, N. V.**, Dixit, P. M., and Lal, G. K, 1996, Analysis of Axisymmetric Tube Extrusion, *International Journal of Machine Tools and Manufacture*, V36, 1253-1267.
5. **Reddy, N. V.**, Dixit, P. M., and Lal, G. K, 1997, Die Design for Axisymmetric Hot Extrusion, *International Journal of Machine Tools and Manufacture*, V37, 1635-1650.

6. **Reddy, N. V.**, Dixit, P. M., and Lal, G. K., 2000, Ductile Fracture Criteria and Its Prediction in Axisymmetric Drawing, *International Journal of Machine Tools & Manufacture*, V40, 95-111.
7. **Reddy, N. V.**, and Suryanarayana, G., 2001, A Set-up Model for Tandem Cold Rolling Mills, *Journal of Materials Processing Technology*, V116, 269-277.
8. Pandey, P. M., **Reddy, N. V.**, and Dhande, S. G., 2003, Real Time Adaptive Slicing for Fused Deposition Modelling, *International Journal of Machine Tools and manufacture*, V41, 61-71.
9. Pandey, P. M., **Reddy, N. V.**, and Dhande, S. G., 2003, Improvement of Surface Finish by Staircase Machining in Fused Deposition Modelling, *Journal of Materials Processing Technology*, V132, 310-318.
10. Sonis, P., **Reddy, N. V.**, and Lal, G. K., 2003, On Multistage Deep Drawing of Axisymmetric Components, *ASME Journal of Manufacturing Science and Engineering*, V125, 352-362.
11. Gupta, S., **Reddy N. V.**, and Dixit, P. M., 2003, Ductile Fracture Prediction in Axisymmetric Upsetting using Continuum Damage Mechanics, *Journal of Materials Processing Technology*, V141, 256-265.
12. Pandey, P. M., **Reddy, N. V.**, and Dhande, S. G., 2003, Slicing Procedures in Layered Manufacturing: A Review, *Rapid Prototyping Journal.*, V9, 274-288. **67**
13. Trimurthulu, K., Pandey, P. M., and **Reddy, N. V.**, 2004, Optimum Part Deposition Orientation in Fused Deposition Modeling, *International Journal of Machine Tools and Manufacture*, V44, 585-594.
14. Pandey, P.M., Trimurthulu, K., and **Reddy, N. V.**, 2004, Optimal Part Deposition Orientation in FDM by using a Multi-criteria Genetic Algorithm, *International Journal of Production Research*, V42, 4069-4089.
15. Rajak, A., and **Reddy, N. V.**, 2005, Prediction of Internal Defects in Plane Strain Rolling, *Journal of Materials Processing Technology*, V159, 409-417 .
16. Pandey, P. M., **Reddy, N. V.**, Dhande, S. G., 2006, Virtual Hybrid-FDM System to Enhance Surface Finish, *Virtual and Physical Prototyping (An International Journal)*, V1, 101-116.
17. Tuli, M., **Reddy, N. V.**, Saxena, A., 2006, Constrained shape modification of B-spline curves, *Computer Aided Design and Applications (An International Journal of CAD and CAM)*, V3, 437-446.
18. Pandey, P. M., **Reddy, N. V.**, Dhande, S. G., 2007, Part Deposition Orientation Studies in Layered Manufacturing, *Journal of Materials Processing Technology*, V185, 125-131.
19. Deep, K. S., **Reddy, N. V.**, Agrawal, A., Ramkumar, J., 2007, A Mathematical Model for Determination of Limiting Blank Holding Force and Cavity Pressure in Hydromechanical Deep Drawing, *IMechE Part – B Journal of Manufacture*, V221, 155 – 162.
20. Reddy, B. V., **Reddy, N. V.**, Ghosh, A., 2007, Fused Deposition Modelling using Direct Extrusion, *Virtual and Physical Prototyping (An International Journal)*, V2, 51-60.
21. Agrawal, A., **Reddy, N. V.**, Dixit, P. M., 2007, Determination of Optimum Process Parameters for Wrinkle Free Products in Deep Drawing Process, *Journal of Materials Processing Technology*, V191, 51 – 54.

22. Bansal, S., Malik, P., **Reddy, N. V.**, Saxena, A., 2008, Modular Fixture Planning for Minimum 3D Tolerances using Neutral Part Data Exchange Format, *International Journal of Production Research*, V46, 1455-1476.
23. Agrawal, A., **Reddy, N. V.**, Dixit, P. M., 2008, Optimal Blank Shape Prediction Considering Sheet Thickness Variation: An Upper Bound Approach, *Journal of Materials Processing Technology*, V196, 249-258.
24. Bansal, S., Nagarajan, S., **Reddy, N. V.**, 2008, An Integrated Fixture Planning System for Minimum Tolerances, *International Journal of Advanced Manufacturing Technology*, V38, 501-513.
25. Chakraborty, P., **Reddy, N. V.**, 2009, Automatic Determination of Parting Directions, Parting Lines and Surfaces for Two Piece Permanent Molds, *Journal of Materials Processing Technology*, V209, 2464-2476.
26. Nagarajan, S., **Reddy, N. V.**, 2010, STEP-based Automatic System for Recognizing Design and Manufacturing Features, *International Journal of Production Research*, V48, 117-144.
27. Bansal, S., **Reddy, N. V.**, 2010, Automatic Setup Planning System using a Neutral Part Data Exchange Format, *International Journal of Computer Aided Engineering and Technology*, V3, 107-125.
28. Bassi, R., **Reddy, N. V.**, Bedi, S., 2010, Automatic Recognition of Features for Side Core Design in Two Piece Permanent Molds, *International Journal of Advanced Manufacturing Technology*, V50, 421-439.
29. Malhotra, R., **Reddy, N. V.**, Cao, J., 2010, Automatic 3D spiral path generation for single point incremental forming, *ASME Journal of Manufacturing Science and Engineering*, V132, 061003:1-10.
30. Rohith, U., **Reddy, N. V.**, Dixit, P. M., 2011, An Analytical Approach for the Prediction of Forming Limit Curves subjected to Combined Strain Paths, *International Journal of Mechanical Sciences*, V53, 365-373.
31. Malhotra, R., Bhattacharya, A., Kumar, A., **Reddy, N. V.**, Cao, J., 2011, A New Methodology for Multi-Pass Single Point Incremental Forming with Mixed Tool Paths, *CIRP Annals – Manufacturing Technology*, V60(1), 323-326.
32. Agrawal, A., **Reddy, N.V.**, Dixit, P.M., 2011, Prediction of Wrinkling and Determination of Minimum Blankholding Pressure in Multi-stage Deep Drawing, *ASME Journal of Manufacturing Science and Engineering*, V133, 061023:1-8.
33. Bhattacharya, A., Maneesh, K., **Reddy, N.V.**, Cao, J., 2011, Formability and Surface Finish Studies on Single Point Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, V133, 061020:1-8.
34. Malhotra, R., Cao, J., Ren, F., Kiridena, V., Xia, Z. C., and **Reddy, N.V.**, 2011, Improvement of Geometric Accuracy in Incremental Forming by using a Squeezing Toolpath Strategy with Two Forming Tools, *ASME Journal of Manufacturing Science and Engineering*, V133, 061019: 1-10.
35. Surti, A., **Reddy, N.V.**, 2012, A Non-Discretized Approach to Visibility Analysis for Automatic Mould Feature Recognition using STEP Part Model, *Journal of Advanced Manufacturing Systems*, V11, No 1, 1-16
36. Xu, D., Malhotra, R., **Reddy, N.V.**, Chen, J., Cao, J., 2012, Analytical prediction of stepped feature generation in multi-pass single point incremental forming, *Journal of Manufacturing Processes (SME Journal)* 14 (4), pp. 487-494.

37. M Beltran, R Malhotra, A. J. Nelson, A Bhattacharya, **N. V. Reddy**, Jian Cao, 2013, Experimental Study of Failure Modes and Scaling Effects in Micro-Incremental Forming, *ASME Journal of Micro and Nano-Manufacturing* 031005: 1-15.
38. J Asghar, R Lingam, E Shibin and **NV Reddy**, 2014, Tool path design for enhancement of accuracy in single-point incremental forming, Proc IMechE Part B: Journal of Engineering Manufacture, V228(9), 1027-1035.
39. Lingam, R., Bansal, A., & **Reddy, N.V.** (2015). Analytical Prediction of Formed Geometry in Multi-stage Single Point Incremental Forming. *International Journal Material Forming (EU Society Journal)* (2015).
40. Lingam R., Srivastava, A., **Reddy, N V.**, 2016, Deflection Compensations for Tool Path to Enhance Accuracy during Double Sided Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, 138 (9), 091008
41. Lingam R., Belk J., Om Prakash, **N V Reddy**, 2017, Automatic Feature Recognition and Tool Path Strategies for Enhancing Accuracy in Double Sided Incremental Forming", *International Journal of Advanced Manufacturing Technology*, V88 (5-8), 1639-1655.
42. Bansal, A., Lingam, R., Yadav, S K., **Reddy N V.**, 2017, Prediction of Forming Forces in Single Point Incremental Forming, *Journal of Manufacturing Processes (SME Journal)*, V28, 486-493.
43. Lingam R., Bansal A., Om Prakash, **Reddy NV.**, 2018, Mechanics Based Integrated Product and Process Design for Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, 140 (2) 021016.
44. R Lingam, P Konka, K Kalathiya, S Shaik, **N V Reddy**, 2018, Analysis of Anisotropic Effects in Single Point Incremental Forming, *Journal of Physics: Conf. Series* 1063 (2018) 012125
45. **N V Reddy**, R Lingam, 2018, Double Sided Incremental Forming: Capabilities and Challenges, *Journal of Physics: Conf. Series* 1063 (2018) 012170.
46. A Subrahmanyam, R. Lingam, K Hayakawa, S Tanaka, **N V Reddy**, 2020, Experimental and Numerical Investigation of Residual Stresses in Incremental Forming, *Materials Transactions(The Japan Institute of Metals and Materials)* 61 (2, 2020), 228-233.
47. A M More, R Kalsar, P Shivshankar, R Lingam, **N V Reddy**, O Prakash, S Suwas, 2020, Incremental forming of the Al-Li alloy AA2195: Role of texture and microstructure, The Minerals, Metals & Materials Society (TMS) *JOM*, V72, 1647–1655.
48. S Mishra, K U Yazar, A More, L Kumar, R Lingam, **N V Reddy**, O Prakash, S Suwas, 2020, Elucidating deformation modes in incremental sheet forming process: Insights from crystallographic texture, microstructure and mechanical properties, *Materials Science & Engineering A*, V790, 139311.
49. K Praveen, R lingam, **N V Reddy**, 2020, Tool Path Design System to Enhance Accuracy during Double Sided Incremental Forming: An Analytical Model for Predicting Compensations for Small/Large Components, *SME Journal of Manufacturing Processes*, V58, 510-523.
50. K Praveen, R Lingam, U Singh, K Shiva, **N V Reddy**, 2020, Enhancement of Accuracy in Double Sided Incremental Forming by compensating Tool Path for

- Machine Tool Errors, *International Journal of Advanced Manufacturing Technology*, V111, 1187-1199.
51. S Mishra, K U Yazar, A Kar, R Lingam, **N V Reddy**, O Prakash, S Suwas, 2021, Texture and microstructure evolution during single point incremental forming of commercially pure titanium, *Metallurgical and Materials Transactions A, TMS, ASM, V52A*, 151-

Papers published in Conference Proceedings

1. Sahu, A. K., and Reddy, N. V., 2002, A Knowledge Based Process Planning System for Axisymmetric Deep Drawing, *Symposium on Manufacturing Excellence*, IIT Madras, January 2002, 131-132.
2. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2003, Surface Roughness Simulation for FDM Processed Parts, Proceedings of 18th International Conference on Computer Aided Production Engineering (CAPE 2003), Edinburgh (UK), March 18 - 19, 2003, 413-421.
3. Vijay Kumar, P. V., and Reddy, N. V., 2003, Computer Aided Process Design System for Axisymmetric Deep Drawing, Proceedings of 18th International Conference on Computer Aided Production Engineering (CAPE 2003), Edinburgh (UK), March 18 - 19, 2003, 105-112.
4. Pandey, P.M., Reddy, N.V., and Dhande, S.G., 2005, Part Deposition Orientation Studies in Layered Manufacturing, Proceedings of 3rd *International Conference on Advanced Manufacturing Technology (ICAMT 2004)*, Kuala Lumpur, Malaysia, May 2004.
5. Bhanu Kishore, B., and Reddy, N. V., 2004, Ductile Fracture Prediction in Open Die Forging, Proceedings of 3rd JSTP International Seminar on Precision Forging (3rd JSTP ISPF, Organized by Japan Society for Technology of Plasticity), Nagoya (JAPAN), 6 pages., March 14-19, 2004. (**Invited paper**)
6. Reddy, N. V., Pandey, P. M., 2005, Enhancement of surface finish in Fused Deposition Modelling, *VRAP*, Portugal, Proceedings is Published by Traylor and Francis.
7. Bansal, S., Malik, P., Reddy, N. V., Saxena, A., 2005, Automated Modular Fixture Planning, CAPE 2005, Australia. (**Keynote Paper**)
8. Reddy, N. V, Pandey, P. M., 2006, Layered Manufacturing, Invited Talk, *National Conference on Design for Product Life Cycle(DPLC-2006)*, February 17 - 18, 2006, BITS PILANI. (**Invited paper**)
9. Manna, I, Tuli, M., Reddy, N.V., Ghosh, A., Joshi, S., 2006, Laser and Plasma Technology in Manufacturing: The Indian Scenario, Invited Talk - Country Paper (Presented by Prof. A. Ghosh).
10. Bansal, S., Srivastava, S., Reddy, N. V., Kripashanker, 2006, An Integrated Fixture Planning System for Minimum Tolerances, *Ist International and 22nd AIMTDR Conference*, December 2006, IIT Roorkee.
11. Reddy, N. V., 2007, Automated Modular Fixture Planning - An Integrated Approach, *National Conference on Design, Dynamics and Manufacturing (NCDDM-2007)*, March 16-17, 2007, SLIET, Longowal.

12. Reddy, N. V., 2007, Modelling and Simulation of Manufacturing Processes: Some Examples, 23rd National Convention of Mechanical Engineers, Theme: *Emerging Trends in Manufacturing Systems and technologies*, September 10-12, 2007, Hyderabad.
13. Malhotra, R., Reddy, N. V., Agrawal, A., 2007, Automatic Contour Path Generation for Incremental Sheet Metal Forming, *International Symposium on Automotive Sheet Metal Forming*, December 17-18, 2007, Tata Nagar (Invited, Organized by TATA STEEL and IIM Jmshedpur Chapter).
14. Malhotra, R., Reddy, N. V., Cao, J., 2008, A Generic Tool Path Generation Methodology for Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2008*, October 7-10, 2008, Evanston, IL, USA.
15. Wang, Y., Huang, Y., Cao, J., Reddy, N. V., 2008, Experimental Study on a New Method of Double Side Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2008*, October 7-10, 2008, Evanston, IL, USA.
16. Cao, J, Huang, Y., Reddy, N. V., Malhotra, R., Wang, Y., 2008, Incremental Sheet Metal Forming: Advances and Challenges, *International Conference on Technology of Plasticity (ICTP 2008)*, September 7 – 11, 2008, Gyeongju, Korea.
17. Reddy, NV, Cao, J., Incremental Sheet Metal Forming: A Review, 2008, Proceedings of the Indo-US workshop on Smart Machine Tools, Intelligent Manufacturing Systems at Multiscale Manufacturing, December 2008, PSG college of Technology, Combatore.
18. Wang, Y., Wu, W., Huang, Y., Reddy, NV., Cao., J., 2009, Experimental and Numerical Analysis of Double Sided Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2009*, October 4-7, 2009, Indiana, USA.
19. Formability and surface finish studies in single point incremental forming, *3rd international and 24th All India MTDR Conference*, December 13-15, 2010, Visakhapatnam, 133 – 137, 2010, S Singh, A Bhattacharya, N V Reddy.
20. A non-discretized approach to visibility analysis for automatic mould feature recognition using STEP part model, *3rd international and 24th All India MTDR Conference*, December 13-15, 2010, Visakhapatnam, 597 – 602, 2010, A Surti, N V Reddy.
21. Grain orientation during single point incremental forming, The 6th international conference on micro-manufacturing (ICOMM 2011), March 7-10, 2011, Tokyo, 35-39, A Bhattacharya, N V Reddy.
22. Formability and surface finish studies in single point incremental forming, *2011 ASME International Manufacturing Science and Engineering Conference (MSEC 2011)*, June 13-17, 2011, OSU Corvallis, 2011, A Bhattacharya, S Singh, K Maneesh, N V Reddy, J Cao.
23. Determination of Minimum Blankholding Pressure for Producing Wrinkle Free Products in Multistage Deep Drawing, *2011 ASME International Manufacturing Science and Engineering Conference (MSEC 2011)*, June 13-17, 2011, OSU Corvallis, , 2011, A Agrawal, N V Reddy, P M Dixit.
24. Rohith, U., Reddy, N.V., Dixit, P. M., 2011, A bilinear strain path approach for the prediction of forming limit curves under complex loading paths, ICTP 2011.

25. Asghar, J., Shibin, E., Bhattacharya, A., Reddy, N.V., 2012, Twist in single point incremental forming, ASME 2012 International Manufacturing Science and Engineering Conference Collocated with the 40th North American Manufacturing Research Conference and in Participation with the Int. Conf., MSEC 2012 , pp. 243-247
26. Xu, D.-K., Malhotra, R., Cao, J., Reddy, N.V., Chen, J., 2012, Analytical prediction of stepped feature generation in multi-pass single point incremental forming, Transactions of the North American Manufacturing Research Institution of SME 40 , pp. 84-93
27. Asghar, J., Reddy, N. V, 2013, Importance of Tool Configuration in Incremental Sheet Metal Forming of Difficult to Form Materials using Electro-Plasticity, Proceedings of the World Congress on Engineering 2013 Vol III, WCE 2013, July 3 - 5, 2013, London, U.K.
28. J Asghar, R Lingam, N. V. Reddy, 2014, Tool Path Influence on Electric Pulse Aided Deformation during Incremental Sheet Metal Forming, Melbourne, January 6-10, NUMISHEET 2014.
29. R Lingam, J Asghar, A Bhattacharya, N V Reddy, 2015, Compensations for Tool Path to Enhance Accuracy during Double Sided Incremental Forming, ASME International Manufacturing Science and Engineering Conference (MSEC 2015).
30. R Lingam, C L Harikrishnan, I V M Kishan, N V Reddy, 2015, Importance of Feature Sequencing in Incremental Forming, ASME International Manufacturing Science and Engineering Conference (MSEC 2015).
31. A Agrawal, N V Reddy, P M Dixit, 2015, Optimal blank shape Prediction Considering Sheet Thickness Variation for Multistage Deep Drawing, ASME International Manufacturing Science and Engineering Conference (MSEC 2015)
32. Bansal, A., Lingam, R., Yadav, S K., Reddy N V., 2017, Prediction of Forming Forces in Single Point Incremental Forming, 45th SME North American Manufacturing Research Conference (NAMRC) 45, LA, USA.
33. Subrahmanyam, A., Praveen, K., Rahul Verma, Reddy, N V., 2018, A review on electric pulse aided plastic deformation, Asia Steel (International Conference) 2018, February 6-9, 2018, Bhuvaneshwar, **KEY NOTE**
34. N V Reddy, R Lingam, 2018, Double Sided Incremental Forming: Capabilities and Challenges, NUMISHEET 2018 (International Conference and Workshop on “Numerical Simulation of 3D Sheet Metal Forming Processes”), July 30-Aug 3, 2018, Tokyo. **KEYNOTE**
35. R Lingam, P Konka, K Kalathiya, S Shaik, N V Reddy, 2018, Analysis of Anisotropic Effects in Single Point Incremental Forming, NUMISHEET 2018 (International Conference and Workshop on “Numerical Simulation of 3D Sheet Metal Forming Processes”), July 30-Aug 3, 2018, Tokyo.
36. A Subrahmanyam, R. Lingam, K Hayakawa, S Tanaka, N V Reddy, 2019, Double sided Incremental Forming - Experimental and Numerical Investigation of Residual Stresses in Incremental Forming, APSTP 2019, Tokyo, July 31 – Aug 3, 2019, **INVITED TALK**
37. M Matsumoto, S Hirose, K Martinsen, S Suryakumar, N V Reddy, G D Sverre, 2019, Additive Manufacturing for Circular Manufacturing: Trends and

- Challenges – A Survey in Japan, Norway, and India; EcoDesign 2019, Yokohama, Nov 25-27, 2019.
38. S Suryakumar, N V Reddy, 2019, Advanced Manufacturing Capabilities in Existing Machinery: A Case Study of Retrofitting CNC and Weld-Deposition for Additive Manufacturing, EcoDesign 2019, Yokohama, Nov 25-27, 2019.
 39. N V Reddy, S Suryakumar, M Matsumoto, K Martinsen, G D Sverre, 2019, Incremental Sheet Metal Forming: A Candidate Process for Circular Manufacturing, EcoDesign 2019, Yokohama, Nov 25-27, 2019.
 40. K Martinsen, S A Carla, T Kito, M Matsumoto, N V Reddy, G D Sverre, 2019, Closed Loop Tolerance Engineering Modelling and Maturity Assessment in a Circular Economy Perspective, EcoDesign 2019, Yokohama, Nov 25-27, 2019.

THESIS SUPERVISION

Ph.D. Students (Graduated)

1. Pulak M. Pandey, 2003, Surface Finish Enhancement in Fused Deposition Modelling (@IIT Delhi)
2. Shrikant Bansal, 2006, A Neutral Format Part Model based Integrated Fixture Planning System for Minimum Tolerances (COO, CRISP, Bhopal)
3. Anupam Agrawal, 2008, Studies on Optimal Blank Shape and Wrinkling in Axy-symmetric Multistage Deep Drawing (@IIT Ropar)
4. Dharmendra, B V, 2008, Electro Discharge Machining Tool Design and Development of Electro-conductive Ceramic Tool Materials (Professor, Karnataka)
5. Bhattacharya, A., 2014, Studies on Incremental Forming to Enhance Accuracy and Geometric Complexity. (@IIT Patna)
6. Rakesh Lingam, 2019, Tool Path Generation System for Double Sided Incremental Forming. (@IIT Dharwad)

SPONSORED PROJECTS

Principal Investigator (Completed/ Ongoing)

1. Computer Modelling and Simulation of Plane Strain Rolling Process for Internal Defect Prediction, Department of Science and Technology, New Delhi, (2000 - 2002), (Young Scientist Project). **Completed**
2. Short-term Course on "Metal Forming - Modeling Techniques", Sponsored by ISTE, New Delhi, June 10-22, 2000, **Completed**
3. Knowledge Based Process Planning System for Deep Drawing, Department of Science and Technology, New Delhi, (2000 - 2003). **Completed**
4. Hybrid Fused Deposition Modelling RP System for Enhancing Surface Finish, CSIR, New Delhi, (2003 – 2006), **Completed**.
5. A course on "Finite Element Applications in Metal Forming" for TATA STEEL (R&D) engineers (Four weeks course), TATA STEEL, Jamshedpur, Completed.
6. Consultancy on CAD/CAM, Indo German Institute of Advanced Technology, Vishakhapatnam, 2006, (**Completed**)
7. Drawing of An Ultra Thin Wire: A Numerical and Experimental Study, DST, New Delhi, 2006 – 2008, **Completed**, Indo-Japan Project.
8. One of the investigators in "Indo-US center on Advanced and Futuristic Manufacturing", Indo-USA S&T Forum, DST, New Delhi, 2006–2008, (Indian coordinator: Prof Amitabha Ghosh) IIT Kanpur and IIT Kharagpur are involved from Indian Side; UIUC, UCI and Northwestern University, Evanston are involved from USA Side. **Completed**
9. Automatic Modular Fixture Planning for Minimum Tolerances, DST, New Delhi, 2006 – 2009. **Completed**

10. Incremental Sheet Metal Forming at Multi-scales, DST, New Delhi, Feb 2008–Jan 2011, **Completed**
11. Incremental Sheet Metal Forming at Multi-scales, USD350K, NSF USA , Feb 2008–Jan 2011, **Completed** (PI in USA: J Cao, Northwestern University Evanston)
12. Strain Path Independent Forming Limit Diagram for sheet metal forming simulation, TATA STEEL, Jamshedpur, 2008-2011. **Completed**
13. One of the investigators in “Indo-US Centre for Research Excellence in Fabrics”, Indo-USA S&T Forum, DST, New Delhi. (Indian Coordinator: Prof. Amitabha Ghosh) 2008 – 2013. Institutes Form India: IITK, IITKgp, BESU, CMERI; Institutes from US: UIUC, NU Evanston, UCI. **Completed**
14. Single Point Incremental Forming of Ti Alloys, DRDO, Delhi, 2011-2012, **Completed**
15. Development and Validation of Predictive Models for Forming of Large Components using DSIF and Studies on Difficult to Form Materials, **SERB DST** (GoI) (2016- 2020 **Completed**)
16. Forming of Thermoplastic Composites using Reconfigurable Tooling (**Boeing Global**) (2017 – 2019, **Completed**)
17. Some studies on Incremental Forming (**Boeing Global**) (2011 - **Ongoing**)
18. Development of Electric Pulse Aided Forming Processes, **UAY** Project (Government of India Initiative) (Supported by **MHRD, DHI and TATA STEEL**) (2016- 2021 **Ongoing**)
19. Intelligent Circular Manufacturing research and educational collaboration with India and Japan (INMAN, Supported by Norwegian Research Council, Participating Institutes: IITH, India; Waseda University, Japan; AIST, JAPAN), Project # 275156, Project Leader: Prof. Kristian Martinsen, NTNU, Norway. (2018 – 2021 **Ongoing**)

RECOGNITION

- **Associate Editor**, Journal of Manufacturing Processes (Society of Manufacturing Engineers Journal, USA), Published by Elsevier (Oct 2008-Oct 2014)
- **Best Teacher** Citation for Introduction to Manufacturing Processes
- **Best Tutor** Citation for Engineering Graphics
- **Best Teacher** Citation Metal Forming
- **Best Teacher** Citation for Manufacturing Systems Course
- **Best Teacher** Citation for Rapid Manufacturing Course
- **Delivered Key note/Invited talks** at International and National conferences

ADMINISTRATIVE AND OTHER INFORMATION

1. Dean (Research and Development), IIT Hyderabad, June 2014-August 2017.
2. Member of Domain Expert Committee (Manufacturing), IMPRINT (An Initiative of MHRD, GOI) (2016-2019)
3. Member, PAC on TDM, DST (GoI, 2016-2019)
4. Coordinator, Design and Manufacturing domain, IITH – Japan FRIENDSHIP Project (2014-2018)
5. Member, Review Committee (ME Department), NIT warangal
6. Member, BoG, NIT Warangal (2017-2018)
7. Member, BoG, College of Engineering, Andhra University (2016-2018)
8. Member, PAC, International Programme’s in Materials and Engineering Sciences, DST.(2017- 2019)
9. Member, Academic Council, NIT Tadepalligudem AP.(2018-2020)
10. Member, Research Advisory Board, Central Manufacturing Technology Institute (CMTI), Bengaluru (2018-2021)
11. Member, BoG, Vasavi College of engineering, Hyderabad(2018-2021)

12. Member, Academic Council, CBIT Hyderabad. (2016-)
13. Reviewer for many International Journals in the areas of Manufacturing, CAD/CAM , Additive Manufacturing and Digital Fabrication
14. Technical/Scientific/Advisory committee member of Many International Conferences in Manufacturing.
15. Member (2006-2012) and co-cordinator (2011-2012), VLFM coordination committee@IIT Kanpur
16. Coordinator, Introduction to Manufacturing Processes (TA201N ME CORE) laboratory (January 2001- 2012) @IIT Kanpur
17. Coordinator, Departmental D0 and Prototyping Laboratory, September 2007 - 2012. @IIT Kanpur
18. Convener, DPGC, Department of Mechanical Engineering (2003-2004, 2010-2011) @IIT Kanpur
19. Warden, Hall V, Feb 2004 – Feb 2005. @IIT Kanpur
20. Member, Senate Elections Committee (2002-2003) @IIT Kanpur
21. Member, Asia Youth Forum in Advanced Manufacturing (JSME) (2001-2005)
22. Conducted number of Short courses/Workshops for faculty members as well as Industry personnel (at IITK as well as IITH)
23. Delivered invited talks in more than 25 international/national conferences and in more than 15 Research organizations/Industries.