

## Srikanth Bontha

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### EDUCATION

- PhD in Engineering, Wright State University, Dayton, Ohio, USA.  
Cumulative GPA: 3.8/4.00; Graduation Date: August 2006  
*Dissertation*: “The Effect of Process Variables on Microstructure in Laser-Deposited Materials”.
- M.S. in Mechanical Engineering, Wright State University, Dayton, Ohio, USA.  
GPA: 3.6/4.00; Graduation Date: April 2002  
*Thesis*: “The Behavior of Short Interface Edge-Cracks in Bonded Bimaterial Layers”.
- B.Tech in Metallurgical Engineering, Jawaharlal Nehru Technological University, Hyderabad, India.  
Aggregate: 76.5%; Graduation Date: July 1999  
*Senior Project*: “Evaluation of Microstructure and Mechanical Properties of ‘Cu-Ag’ Alloys”.

### TEACHING EXPERIENCE

- Assistant Professor, Mechanical Engineering Department, National Institute of Technology Karnataka (NITK), Surathkal, Mangalore, June 2013 – Present.
- Assistant Professor, Mechanical Engineering Department, Indian Institute of Technology (IIT) Patna, June 2011 – June 2013.
- Assistant Professor, Mechanical Engineering Department, Temple University, Philadelphia, PA, September 2009 – May 2011.
- Graduate Teaching Assistant, Department of Mechanical and Materials Engineering, Wright State University, Dayton, Ohio, September 1999 – June 2001.

### INDUSTRIAL EXPERIENCE

- Engineer- Global Milling Systems Engineering, Kennametal Inc, Latrobe, PA, October 2006 – August 2009
- Advanced Materials Machining Engineer - Breakthrough Technologies, Kennametal Inc, Latrobe, PA, January 2006 – September 2006 (Contractor Thru Kelly Services, Independence, Ohio)

### RESEARCH INTERESTS

- Mechanics and Material issues in Additive Manufacturing
- Machining of Titanium Alloys
- Mathematical Modeling of Manufacturing Processes

### PATENTS/TRADE SECRET

- Morrison, G.M., and **Bontha, S.**, “Double-Sided Ball End Mill Cutting Insert and Tool Therefor”, United States Patent US 2010/0124465 A1, Patented on May 20, 2010.
- Morrison, G.M., and **Bontha, S.**, “Cutting Tool Having Coolant Delivery System for Providing Cutting Fluid in a Fan-Like Pattern”, United States Patent US 2010/0239377 A1, Patented on September 23, 2010.
- Morrison, G.M., **Bontha, S.**, Seculi, J., Long, T.J., Verellen J.J., and Iyer, R., “Cutting Tool with Error Proofing Feature”, United States Patent US 2011/0076106 A1, Patented on March 31, 2011.
- **Bontha, S.**, 2008, “Computational Data Analysis Technique for Differentiating between Edge Preps,” filed as a trade secret internally within Kennametal Inc.

## JOURNAL AND CONFERENCE PUBLICATIONS

- Davis, J.Y., Klingbeil, N.W., and **Bontha, S.**, 2010, "Effect of Free Edges on Melt Pool Geometry and Solidification Microstructure in Beam-based Fabrication of Bulky 3-D Structures," *Twenty First Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2010.
- **Bontha, S.**, Klingbeil, N.W., Kobryn, P.A., and Fraser, H.L., 2009, "Effects of Process Variables and Size-Scale on Solidification Microstructure in Beam-Based Fabrication of Bulky 3-D Structures," *Materials Science and Engineering A*, Vol. 513-514, pp. 311-318.
- Davis, J.Y., Klingbeil, N.W., and **Bontha, S.**, 2009, "Effect of Free Edges on Melt Pool Geometry and Solidification Microstructure in Beam-based Fabrication of Thin-Wall Structures," *Twentieth Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2009, pp. 320-331.
- **Bontha, S.**, Long, T.J., and Prichard, P.D., 2008, "Development of a Cutting Insert Geometry for Face Milling of Titanium Alloys," *Proceedings 11<sup>th</sup> CIRP Conference on Modeling of Machining Operations*, Gaithersburg, Maryland, September 2008, pp. 5-12.
- Mehrotra, P.K., Gubanich, R.J., **Bontha, S.**, Shamasundar, G., Chidanand, G., Mirajkar, S., and Roediger, K., 2008 "Modeling of Springback During Ejection of Hardmetal PM Parts Following Compaction," *Proceedings 2008 World Congress on Powder Metallurgy and Particulate Materials*, Washington D.C., June 2008.
- Cherla, S., **Bontha, S.**, Chen, S., Mylavaram, N., and Sampath, K., 2007, "FEA Driven Sustainable Product Engineering Solutions," *Proceedings First International Conference on Sustainable Manufacturing*, Montreal, Canada, October 2007, pp. 133-143.
- **Bontha, S.**, Klingbeil, N.W., Kobryn, P.A., and Fraser, H.L., 2006, "Thermal Process Maps for Predicting Solidification Microstructure in Laser Fabrication of Thin-Wall Structures," *Journal of Materials Processing Technology*, Vol. 178, Issue. 1-3, pp. 135-142.
- Klingbeil, N. W. and **Bontha, S.**, 2003, "A Maximum Allowable Flaw Size for Debond-Resistant Bimaterial Layers," *Engineering Fracture Mechanics*, Vol. 70, No. 15, pp. 2103-2114.
- **Bontha, S.** and Klingbeil, N.W., 2006, "Effect of a Distributed Heat Source on Melt Pool Geometry and Microstructure in Beam-Based Solid Freeform Fabrication," *Seventeenth Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2006, pp. 478-489.
- Klingbeil, N.W., **Bontha, S.**, Gaddam, D., Brown, C., Beuth, J.L., Birnbaum, A. and Aggarangsi, P., 2006, "Modeling of Melt Pool Size and Solidification Microstructure in Laser-Based Additive Manufacturing," *Proceedings 2006 NSF DMII Grantees and Research Conference*, St. Louis, MI, July 2006.
- Klingbeil, N.W., **Bontha, S.** Beuth, J.L., Birnbaum, A. and Aggarangsi, P., 2005, "Prediction and Control of Melt Pool Size and Microstructure in Laser-Based Additive Manufacturing," *Proceedings 2005 NSF DMII Grantees and Research Conference*, Scottsdale, Arizona, January 2005.
- Klingbeil, N.W., **Bontha, S.**, Brown, C.J., Gaddam, D.R., Kobryn, P.A., Fraser, H.L., and Sears, J.W., 2004, "Effects of Process Variables and Size-Scale on Solidification Microstructure in Laser-Based Solid Freeform Fabrication of Ti-6Al-4V," *Fifteenth Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2004, pp. 92-104.
- Birnbaum, A., Aggarangsi, P., Beuth, J., **Bontha, S.**, Klingbeil, N., 2004, "Control of Melt Pool Size and Microstructure in Laser-Based Additive Manufacturing Processes," *Proceedings 2004 NSF Design, Service and Manufacturing Grantees and Research Conference*, Dallas, Texas, January 2004.
- **Bontha, S.** and Klingbeil, N.W., 2003, "Thermal Process Maps for Controlling Microstructure in Laser-Based Solid Freeform Fabrication," *Fourteenth Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2003, pp. 219-227.
- Klingbeil, N.W. and **Bontha, S.**, "Thermal Process Maps for Controlling Microstructure in Laser-Deposited Materials," HT2003-47503, *ASME Summer Heat Transfer Conference*, Las Vegas, NV, July 2003.
- Klingbeil, N.W., Brown, C.J., **Bontha, S.**, Kobryn, P.A., and Fraser, H.L., 2002, "Prediction of Microstructure in Laser Deposition of Titanium Alloys," *Thirteenth Annual International Solid Freeform Fabrication Symposium Proceedings*, Austin, August 2002, pp. 142-149.
- Klingbeil, N.W. and **Bontha, S.**, 2002, "The Behavior of Short Interface Edge-Cracks in Bonded Bimaterial Layers," AIAA-2002-1328, *Collection of Technical Papers – 43<sup>rd</sup> AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, Denver, April 2002, Vol. 2, pp. 1008-1014.

## AWARDS AND RECOGNITION

- Selected to represent The Minerals, Metals & Materials Society (TMS) in the Emerging Leaders Alliance (ELA) Capstone Training Program, November 2010, Denver, Colorado, USA.
- Recipient of the 2010 Outstanding Young Manufacturing Engineer award from the Society of Manufacturing Engineers (SME)
- Selected as a 2009 American Society for Metals (ASM) /Indian Institute of Metals (IIM) Visiting Lecturer.
- Recipient of The Minerals, Metals & Materials Society (TMS), Young Leader Professional Development Award for Year 2009.
- A member of the Action in Education Committee of the American Society for Metals (ASM International) (2009-2010).
- A member of the Process Technology and Modeling Committee (2008 – 2011), Titanium Committee, (2008 – 2011) Integrated Computational Materials Engineering Committee (2010 – 2011) of The Minerals, Metals and Materials Society (TMS)
- A member on the International Scientific Committee of the 11<sup>th</sup> CIRP Conference on Modeling of Machining Operations.
- Recipient of the ASM-Dayton Chapter's Merit Finalist Scholarship for the year 2005.
- PhD in Engineering Scholarship (full tuition and stipend), College of Engineering and Computer Science, Wright State University, September 2004-August 2005.
- Winner, The Minerals, Metals & Materials Society (TMS), Materials Processing and Manufacturing Division (MPMD) student travel scholarship, March 2004.
- Best Technical Presentation, "The Behavior of Short Interface Edge Cracks in Bonded Bimaterial Layers," Structural Integrity Session, 26<sup>th</sup> AIAA Dayton Cincinnati Aerospace Science Symposium, May 2001.
- Received Scholarship (full tuition and stipend) from Department of Mechanical and Materials Engineering, Wright State University for the entire duration of my masters and doctoral program till August 2004.
- Highest aggregate (first rank) among the graduating class in Metallurgical engineering during undergraduate programme.

## SELECTED CONFERENCE PRESENTATIONS

- **Bontha S.**, Long T.J., Prichard, P.D., and Muller, T.O., "Thermal Management in Titanium Machining," Third Wave AdvantEdge™ International User's Conference 2009, Fort Worth, TX, May 2009.
- **Bontha S.**, and Klingbeil, N.W., "A Simulation Based Approach for Investigating Solidification Microstructure in Beam-Based Solid Freeform Fabrication," Materials Science and Technology 2008 Conference and Exhibition, Pittsburgh, PA, October 2008.
- **Bontha S.**, and Long, T.J., "Optimization of Insert Edge Preparation in Cutting Tool Development using FEM Simulation," Poster session at Materials Science and Technology 2008 Conference and Exhibition, Pittsburgh, PA, October 2008.
- **Bontha S.**, and Cherla, S., "A Simulation Based Approach for Optimization of Cutter Body Design in Cutting Tool Development," 2008 International ANSYS Conference, Pittsburgh, PA, August 2008.
- **Bontha S.**, Long T.J., Prichard, P.D., and Shirgaokar, M., "An Overview of Metal Cutting Simulation at Kennametal using AdvantEdge™," Third Wave AdvantEdge™ International User's Conference 2008, Minneapolis, MN, May 2008.
- **Bontha S.**, Cherla S., and Long T.J., "AdvantEdge™ Usage at Kennametal," Third Wave AdvantEdge™ International User's Conference 2007, Seattle, WA, May 2007.
- **Bontha S.**, and Klingbeil, N.W., "Effects of Transient Melt Pool Behavior on Solidification Cooling Rates and Thermal Gradients in Laser-Deposited Materials," Materials Science and Technology 2006 Conference and Exhibition, Cincinnati, OH, October 2006.
- **Bontha S.**, "Prediction of Trends in Solidification Microstructure in Laser-Deposited Materials Using Simulation-Based Methods," ASM Dayton Chapter Meeting, Dayton, OH, September 2005.
- **Bontha S.**, and Klingbeil, N.W., "Analytical and Numerical Modeling to Investigate the Effects of process Variables and Size-Scale on Solidification Microstructure in Laser-Deposited Materials," Materials Science and Technology 2005 Conference and Exhibition, Pittsburgh, PA, September, 2005.

- **Bontha S.**, Klingbeil, N.W., and Gaddam, D.R., “Effects of Process Variables and Size-Scale on Solidification Microstructure in Laser-Deposited Ti-6Al-4V,” Materials Science and Technology 2004, New Orleans, LA, September, 2004.
- **Bontha, S.**, Klingbeil, N.W., Brown, C.J., Gaddam, D.R., Kobryn, P.A., Fraser, H.L., and Sears, J.W., 2004, “ Effects of Process Variables and Size-Scale on Solidification Microstructure in Laser-Based Solid Freeform Fabrication of Ti-6Al-4V,” Fifteenth Annual International Solid Freeform Fabrication Symposium, Austin, TX, August, 2004.
- **Bontha, S.** and Klingbeil, N.W., "Process Maps for Controlling Microstructure in Laser Deposited Ti-6Al-4V," TMS Annual Meeting, Charlotte, NC, March, 2004.
- **Bontha, S.** and Klingbeil, N.W., "Thermal Process Maps for Controlling Microstructure in Laser Deposition of Aerospace Materials," Dayton-Cincinnati Aerospace Science Symposium, March 2004.
- **Bontha, S.** and Klingbeil, N.W., "Thermal Analysis for Controlling Microstructure in Laser-Deposited Materials," Dayton-Cincinnati Aerospace Science Symposium, March 2003.
- **Bontha, S.** and Klingbeil, N.W., "The Behavior of Short Interface Edge-Cracks in Bonded Bimaterial Layers," 43<sup>rd</sup> AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Denver, CO, April 2002.
- **Bontha, S.** and Klingbeil, N.W., "A Maximum Allowable Flaw Size for Bonded Bimaterial Layers," Dayton-Cincinnati Aerospace Science Symposium, March 2002.
- **Bontha, S.** and Klingbeil, N.W., "The Behavior of Short Interface Edge-Cracks in Dissimilar Bonded Materials," Dayton-Cincinnati Aerospace Science Symposium, March 2001.

#### CO-AUTHORED CONFERENCE PRESENTATIONS (PUBLISHED ABSTRACTS, NO FULL PAPER)

- Klingbeil, N.W., **Bontha, S.**, Kuchi, S., and Davis, J., “Effects of Finite Geometry and Free-Edges on Solidification Microstructure in Beam-Based SFF,” Nineteenth Annual International Solid Freeform Fabrication Symposium, Austin, TX, August 2008.
- **Bontha, S.**, and Klingbeil, N.W., “Effects of Process Variables on Microstructure in Laser-Deposited Materials,” 2004 ASME International Mechanical Engineering Congress and RD&D Expo, Anaheim, CA, November, 2004.
- Klingbeil, N.W., **Bontha S.**, and Gaddam, D.R., “Effects of Process Variables and Size-Scale on Microstructure in Laser Additive Manufacturing of Ti-6Al-4V,” ASM Materials Solutions Conference and Show, Columbus, OH, October 2004.
- Klingbeil, N.W., Brown, C.J., **Bontha, S.**, Kobryn, P.A. and Fraser, H.L., "Prediction of Microstructure in Laser-Deposited Titanium Alloys," TMS Fall Meeting, Columbus, OH, October 2002.
- Klingbeil, N.W. and **Bontha, S.**, "Critical Crack Lengths for Debond-Resistant Bimaterial Layers," 14th US National Congress of Theoretical and Applied Mechanics, Blacksburgh, VA, June 2002.
- Klingbeil, N.W. and **Bontha, S.**, "Debond-Resistance of Short Interface Cracks Near Free-Edges of Bimaterial Layers Under Differential Expansion," MMC2001, 2001 Mechanics and Materials Summer Conference, San Diego, California, June 2001.

#### PROFESSIONAL ACTIVITIES

- A member of the organizing committee (Treasurer) of “International Conference on Advances in Manufacturing and Materials Engineering (ICAMME-2014)” organized at National Institute of Technology Karnataka Campus between March 27-29, 2014.

#### REVIEWED MANUSCRIPTS FOR

- Metallurgical and Materials Transactions A
- Precision Engineering
- 11<sup>th</sup> and 12<sup>th</sup> CIRP Conference on Modeling of Machining Operations.
- ASME Journal of Manufacturing Science and Engineering.
- Machining Science and Technology
- Rapid Prototyping Journal