

## Publications

### Patent:

- Narendra B. Dahotre and **S. Santhanakrishnan**, "Laser Assisted Machining (LAM) of Hard Tissues and Bones," US 2014/0263214 A1 (2014), USA.
- Narendra B. Dahotre and **S. Santhanakrishnan**, "Laser-Assisted Machining (LAM) of Non-monolithic Composite Bone Material" PCT/US2017/038196 (2017), USA.

### Book chapter:

- **S. Santhanakrishnan** and Narendra B. Dahotre, "Laser Surface Hardening," ASM Handbook on Heat Treating Irons and Steels, American Society for Materials (ASM) International, Materials Park, Ohio, 2013.

### Journals:

- **S. Santhanakrishnan**, F. Kong, and R. Kovacevic, An Experimentally-based Thermo-kinetic Hardening Model for High Power Direct Diode Laser Cladding, Journal of Materials Processing Technology, doi:10.1016/j.jmatprotec.2011.02.006.
- F. Kong, **S. Santhanakrishnan**, D. Lin, and R. Kovacevic, Modeling Temperature Field and Grain Growth of a Dual Phase Steel DP980 in Direct Diode Laser Heat Treatment, Journal of Materials Processing Technology, doi:10.1016/j.jmatprotec.2009.07.020.
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- **S. Santhanakrishnan**, H.Y. Hsien, and N.B. Dahotre, Laser Coating of Hydroxyapatite on Mg for Enhanced Physiological Corrosion Resistance and Biodegradability, Materials Technology: Advanced Performance Materials, 10.1179/1753555712Y.0000000022.
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- H. D. Vora, **S. Santhanakrishnan**, S. P. Harimkar, S. K. S. Boetcher, and N. B. Dahotre, Evolution of Surface Topography in One-Dimensional Laser Machining of Structural Alumina, Journal of the European Ceramic Society, <http://dx.doi.org/10.1016/j.jeurceramsoc.2012.06.015>.
- H. D. Vora, **S. Santhanakrishnan**, S. P. Harimkar, S. K. S. Boetcher, and N. B. Dahotre, One-Dimensional Multipulse Laser Machining of Structural Alumina: Evolution Of Surface Topography, International Journal of Advanced Manufacturing Technology, doi: 10.1007/s00170-012-4709-8.
- M. A. Marco, **S. Santhanakrishnan**, H. D. Vora, and N. B. Dahotre, Computational Modeling and Experimental Based Parametric Study of Multi-Track Laser Processing on Alumina, Optics & Laser Technology, <http://dx.doi.org/10.1016/j.optlastec.2012.11.019>.
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- H. D. Vora, R. S. Rajamure, **S. Soundarapandian**, S. G. Srinivasan, N. B. Dahotre, Dilution of Molybdenum on Aluminum during Laser Surface Alloying, Journal of Alloys and Compounds, <http://dx.doi.org/10.1016/j.jallcom.2013.03.115>.

- **S. Santhanakrishnan**, N. Kumar, N. Dendge, D. Choudhuri, S. Katakam, S. Palanivel, H. D. Vora, R. Banerjee, R. S. Mishra, N. B. Dahotre, Macro and Microstructural Study of Laser Processed WE43 (Mg-Y-Nd) Magnesium alloy, Metallurgical and Materials Transactions B, DOI: 10.1007/s11663-013-9896-7.
- HD Vora, RS Rajamure, **S Soundarapandian**, SG Srinivasan, NB Dahotre, "Design and optimization of microstructure for improved corrosion resistance in laser surface alloyed aluminum with molybdenum, International Journal of Precision Engineering and Manufacturing, DOI: 10.1007/s12541-013-0192-x.
- Shravana Katakam, Arun Devaraj, Mark Bowden, **S Santhanakrishnan**, Casey Smith, RV Ramanujan, Suntharampillai Thevuthasan, Rajarshi Banerjee, Narendra B Dahotre, Laser assisted crystallization of ferromagnetic amorphous ribbons: A multimodal characterization and thermal model study, Journal of Applied Physics, <http://dx.doi.org/10.1063/1.4829279>.
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- G. Singh, **S. Soundarapandian**, Effect of freezing conditions on  $\beta$  -Tricalcium Phosphate / Camphene scaffold with micro sized particles fabricated by freeze casting, Journal of Mechanical Behaviour of Biomedical Materials. 79 (2018) 1–17.
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- "IIT-M makes bio-friendly bone implant," Times of India, Chennai, 7 June, 2016. <http://epaperbeta.timesofindia.com/Article.aspx?eid=31807&articlexml=IIT-M-makes-bio-friendly-bone-implant-07062016005005#>

## Conferences:

- Indhu R, Divya S, Manish Tak, **Soundarapandian S**, "Microstructure Development in Pulsed Laser Welding of Dual Phase Steel to Aluminium Alloy", Procedia Manufacturing 2018, 46th SME North American Manufacturing Research Conference, NAMRC 46, Texas, USA.
- U. Harikrishnan, **S. Soundarapandian**, Fused Deposition Modelling based Printing of Full Complement Bearings, 46th SME North American Manufacturing Research Conference, NAMRC 46, Texas, USA.
- Leelendhu K, Senthil Murugan M, **Soundarapandian S**, Manufacturing and Design of a 3D-Active Camber structure' in International Conference on Composite Materials and Structures- ICCMS 2017, IIT Hyderabad, Dec 2017
- Khavieya A, **Soundarapandian S**, Vijayaraghavan L, Scope of Confocal Displacement Sensor in the Field of Surface Metrology, ICMTS 2017 – International Conference on Manufacturing Technology and Simulation 7th -8th July, 2017, Chennai, India.
- Vinothkumar P, **Soundarapandian S**, "Thermo mechanical Modeling For Fused Deposition Additive Process," Conference: 4th International Conference on Advances in Materials & Materials Processing, November 5-7, 2016, At IIT Kharagpur, Volume: IV, NOV 2016.
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- L. Sarathkumar and **S. Soundarapandian**, "Ultrashort pulse computational modelling of Laser Interaction with hard dental tissue", The 4th international conference on advances in materials & materials processing, November 5-7, 2016, IIT Kharagpur, INDIA
- Sindhu V, **Soundarapandian S**, "Orthopaedic surgical robot manipulator", International conference on Robotics: Current Trends and Future Challenges (RCTFC), Thanjavur, 2016 DOI: [10.1109/RCTFC.2016.7893414](https://doi.org/10.1109/RCTFC.2016.7893414)
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- L. Sarathkumar and **S. Soundarapandian** (SEP 2015), "An Overview of Laser Dentistry-State of the Art", Proceedings of international conference on laser applications in manufacturing, September 9-10, 2015, New Delhi, INDIA.
- Gurdev and **S. Soundarapandian**, "Freeze casting of Tricalcium Phosphate/Camphene based porous scaffold at low freezing rate by freeze casting method" International Conference on Precision, Meso, Micro and Nano Engineering, December 10-12, 2015, IIT Bombay, Mumbai, India.
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- **S. Santhanakrishnan** and R. Kovacevic, "A Heat Management Model for Hardness Uniformity of Multi-pass Laser Heat Treatment Using High Power Direct Diode Laser," *Proceedings of Materials Fabrication, Properties, Characterization, and Modeling, TMS 140th Annual Meeting and Exhibition*, 2011, 2, 469-476.
- **S. Santhanakrishnan** and R. Kovacevic, "A Feasibility Study of Multi-pass Cladding Using High Power Direct Diode Laser," Accepted for the presentation at *TMS 140th Annual Meeting and Exhibition*, February 27-March 3, 2011, San Diego, CA, USA.
- **S. Santhanakrishnan**, F. Kong, and R. Kovacevic, "A Thermo-Kinetic Phase Transformation Model for Multi-Pass Laser Heat Treatment by using High Power Direct Diode Laser," Presented at *ICALEO 2010*, September 27-30, 2010, Anaheim, CA, USA.
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- **S. Santhanakrishnan** and R. Kovacevic, "On-line Monitoring and Process Parameters Estimation for Multiple Passes Laser Phase Transformation Hardening by Using High Power Direct Diode Laser," Presented at *TMS 139th Annual Meeting and Exhibition*, February 14-18, 2010, Seattle, WA, USA.
- **S. Santhanakrishnan**, F. Kong, and R. Kovacevic, "A Thermo-Kinetic Model and Experimental Analysis of Multiple Passes Laser Phase Transformation Hardening by Using High Power Direct Diode Laser," Presented at *TMS 139th Annual Meeting and Exhibition*, February 14-18, 2010, Seattle, WA, USA.
- **S. Santhanakrishnan**, Fanrong Kong, and Radovan Kovacevic, "A Three-dimensional Transient Modeling and Experimental Analysis of Laser Phase Transformation Hardening by Using High Power Direct Diode Laser," Presented at ASME International Conference on Advances in Modeling, Analysis, and Simulation of Manufacturing Processes, October 4-7, Lafayette, IN, USA.
- F. Kong, **S. Santhanakrishnan**, D. Lin, and R. Kovacevic, "A Thermal-microstructure Model to Predict the Grain Growth of a Dual-phase Steel DP980 in Laser Heat Treatment," Presented at *TMS 138th Annual Meeting Exhibition*, February 15-19, San Francisco, CA, USA.
- S. Gadag, E. Foroozmehr, **S. Santhanakrishnan**, G. Chahine and R. Kovacevic, "Laser Processing of Preplaced Hydroxyapatite on Electron Beam Melted Titanium Alloy," Presented at *ICALEO 2009*, November 2-5, 2009, Orlando, FL, USA.
- **S. Santhanakrishnan**, S. Mahesh, P. Subbaraj, "A Camera Space Encoding Technique for Automatic Fixture Control System," *ICHMI2004*, December 20 – 23, 2004, Bangalore, India.
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- **S. Santhanakrishnan**, S. Mahesh, P. Subbaraj, and R. Murugesan, "A New Algorithm for Diagnosing Diseases Through Microscopic Images of Blood Cells," *National Conference in Bio Mechanics*, November 19 -21, 2004, IIT Delhi, India.
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- P. Selvam and **S. Santhanakrishnan**, "Seperable Programming Technique for Scheduling Optimal Power," *ICORD 2002*, December 27 – 30, 2002, Anna University, Chennai, India.
- **S. Santhanakrishnan**, "Electrostatic Precipitator in Cement Industry," *National Seminar on Modern Trends and Techniques in Safety Engineering*, Institution of Engineers (India) Madurai, July 14, 2001, India.
- **S. Santhanakrishnan**, S. Mahesh, and P. Subbaraj, "Vision Based Automatic Mating of Spatial Components," *XXVI National Symposium of the Optical Society of India on Optics and Opto- Electronics*, February 4 – 6, 2000, REC, Warangal, India.

- **S. Santhanakrishnan**, S. Mahesh, and P. Subbaraj, "Precision Positioning and Mating of Components Using Machine Vision," *International Conference on IFAMS*, January 10 – 12, CIT, Coimbatore, 2000.

#### **Technical Presentations:**

- **S. Santhanakrishnan** and N.B. Dahotre, "Collaborative Research: Composite Surfacing of Amorphous Materials by Laser Interference Nanopatterning", NSF CMMI Engineering Research and Innovation Conference, July 9–12, 2012, Boston, WA, USA.
- **S. Santhanakrishnan** and N.B. Dahotre, "Laser Assisted Rapid Surface Microstructuring of Alumina Ceramic", NSF CMMI Engineering Research and Innovation Conference, July 9–12, 2012, Boston, WA, USA.
- F. Kong, **S. Santhanakrishnan**, and R. Kovacevic, "Study on the Residual Stress and Hardness in Heat Treated High Strength DP980 Steel by Diode Laser," Presented at the *Industrial Advisory Board Meeting of NSF/IUCRC for Lasers and Plasmas for Advanced Manufacturing*, SMU, June 28, 2010, Dallas, TX, USA.
- **S. Santhanakrishnan** and R. Kovacevic, "Thermo-kinetic Phase Transformation Model for Multipass Laser Heat Treatment Using High Power Direct Diode Laser," Presented at the *Industrial Advisory Board Meeting of NSF/IUCRC for Lasers and Plasmas for Advanced Manufacturing*, SMU, June 28, 2010, Dallas, TX, USA.
- **S. Santhanakrishnan**, "A Thermo-kinetic Phase Transformation Model for Multi-pass Laser Heat Treatment by Using High Power Direct Diode Laser," Presented at the *2010 Research Day*, SMU, February 16, 2010, Dallas, TX, USA.
- **S. Santhanakrishnan**, "A Three-dimensional Transient Modeling and Experimental Analysis of Laser Surface Transformation Hardening by Using High Power Direct Diode Laser," Presented at the *2009 Research Day*, SMU, February 17, 2009, Dallas, TX, USA.
- **S. Santhanakrishnan**, "An Automated Diagnosing of Diseases through the Microscopic Images of Blood Cells," Guest Lecture given at the Institution of Engineers (India) Madurai, February 14, 2002, India.

#### **Guest Lectures:**

- **S. Santhanakrishnan**, "Laser Processing of Smart Materials," NIT Trichy, 13 July 2016.
- **S. Santhanakrishnan**, "Laser-based 3D Printing," NIT Trichy, 23 April 2016.
- **S. Santhanakrishnan**, "Additive Manufacturing in Biomedical Applications, Awareness Course on Additive Manufacturing, IIT-Madras, 09 April 2016.
- **S. Santhanakrishnan**, "Innovation – An Idea or End Product," NS College of Engineering and Technology, Theni, 13 March 2015.
- **S. Santhanakrishnan**, "Laser-based Coatings and Surface Modifications," IIM Society, IIT-Madras, 2 December 2014.
- **S. Santhanakrishnan**, "Localized Laser Microprocessing," NIT Trichy, 03 April 2014.
- **S. Santhanakrishnan**, "Laser Induced Surface Texturing for Structural Metals/Ceramics/Plastics," NIT Trichy, 12 June 2013.
- **S. Soundarapandian**, "Recent Manufacturing Trends in Automobile Industry," Hyundai Motor India, 20 May 2013.
- **S. Santhanakrishnan**, Lasers in Medical Industry: Next Generation Biomaterials," AUROLAB, Madurai, 11 January 2013.
- **S. Santhanakrishnan**, "Seizing Leadership in an Academia Industry," SACS MAVMM Engineering College, Madurai, India, February 3<sup>rd</sup> 2011.
- **S. Santhanakrishnan and R. Kovacevic**, "An Overview of Laser-based Green Technology for Surface Modification of Automobile Components," KLN College of Engineering, Madurai, India, April 7<sup>th</sup> 2011.
- **S. Santhanakrishnan**, "Building Your Own Empire: Winning Strategies," Anna University of Technology, Madurai, India, February 10<sup>th</sup> 2011