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Cast Metal Matrix Composites Over Last 50 Years and Future Opportunities in India DPMSD Ajay Kumar P, Pradeep Rohatgi, David Weiss, T.P.D. Rajan, B C	2020
Pai Indian Foundry Journal 16 (66(10),), 17-27	
Squeeze Infiltration Processing and Structural Characteristics of Lightweight Aluminum-Carbon Metal Matrix Composites MG Akhil, AG Arsha, V Manoj, RL Vishnu, TPD Rajan, BC Pai Transactions of the Indian National Academy of Engineering, 1-8	2020
Investigations on the Melt Flow Behavior and Microstructure of A390 Alloy During Vertical Centrifugal Casting Process: CFD Simulation and Experiments AS Karun, JA Kumar, TS Jeyalakshmi, BSG Krishna, KSV Suraj, Transactions of the Indian Institute of Metals 73 (9), 2321-2331	2020
Solidification Processing of Cast Metal Matrix Composites Over the Last 50 Years and Opportunities for the Future PK Rohatgi, PA Kumar, NM Chelliah, TPD Rajan JOM, 1-15	2020
Foundry Processing Techniques for Functionally Graded Engineering Components T.P.D. Rajan, Akhil S. Karun, M.G. Akhil, A G Arsha Indian Foundry Journal 16 (5), 16-19	2020
Solid particle erosion studies on SiC reinforced functionally graded aluminium matrix composites S Prathap Singh, T Prabhuram, K Vinoth Babu, D Elilraja, M Uthayakumar, MS&E 764 (1), 012005	2020
Solid particle erosion studies on SiC reinforced functionally graded aluminium matrix composites SP Singh, T Prabhuram, KV Babu, D Elilraja, M Uthayakumar, TPD Rajan IOP Conference Series: Materials Science and Engineering 764 (1), 012005	2020
Advanced nanocoatings for anticorrosion SB Ulaeto, JK Pancrecious, KK Ajekwene, GM Mathew, TPD Rajan Corrosion Protection at the Nanoscale, 499-510	2020

Biogenic Ag Nanoparticles from Neem Extract: Their Structural Evaluation and Antimicrobial Effects against Pseudomonas nitroreducens and Aspergillus unguis (NII 08123) SB Ulaeto, GM Mathew, JK Pancrecious, JB Nair, TPD Rajan, KK Maiti, ACS Biomaterials Science & Engineering 6 (1), 235-245	2020
Processing of functionally graded aluminum composite brake disc and machining parameters optimization KV Babu, S Marichamy, P Ganesan, D Madan, M Uthayakumar, Materials Today: Proceedings 21, 563-567	2020
Smart nanocontainer-based anticorrosive bio-coatings: Evaluation of quercetin for corrosion protection of aluminium alloys SB Ulaeto, AV Nair, JK Pancrecious, AS Karun, GM Mathew, TPD Rajan, Progress in Organic Coatings 136, 105276	2019
Self-lubricating bidirectional carbon fiber reinforced smart aluminum composites by squeeze infiltration process KMS Manu, LA Raag, TPD Rajan, BC Pai, V Petley, SN Verma Journal of Materials Science & Technology 35 (11), 2559-2569	2019
Reciprocating wear analysis of magnesium-modified hyper-eutectic functionally graded aluminium composites E Jayakumar, T Varghese, TPD Rajan, BC Pai Transactions of the Indian Institute of Metals 72 (6), 1643-1649	2019
Study on the machining of Al–SiC functionally graded metal matrix composite using die-sinking EDM M Uthayakumar, KV Babu, ST Kumaran, SS Kumar, JTW Jappes, Particulate Science and Technology 37 (1), 103-109	2019
Smart Coatings SB Ulaeto, JK Pancrecious, TPD Rajan, BC Pai Noble Metal-Metal Oxide Hybrid Nanoparticles, 341-372	2019
Nanoceria induced grain refinement in electroless Ni-B-CeO2 composite coating for enhanced wear and corrosion resistance of Aluminium alloy JK Pancrecious, JP Deepa, V Jayan, US Bill, TPD Rajan, BC Pai Surface and Coatings Technology 356, 29-37	2018
Metallic composite coatings by electroless technique—a critical review JK Pancrecious, SB Ulaeto, R Ramya, TPD Rajan, BC Pai International Materials Reviews 63 (8), 488-512	2018
Preface on International Conference on Solidification Science and Processing UTS Pillai, BS Murty, TPD Rajan, J Banhart Springer Nature	2018
Preface on International Conference on Solidification Science and Processing J Banhart, UTS Pillai, TPD Rajan, BS Murty	2018

Transactions of the Indian Institute of Metals 71 (11), 2615-2615	
Studies on tribological characteristics of centrifugally cast SiCp-reinforced functionally graded A319 aluminium matrix composites E Jayakumar, AP Praveen, TPD Rajan, BC Pai Transactions of the Indian Institute of Metals 71 (11), 2741-2748	2018
Selectively Reinforced Aluminum Metallic Hybrid Composites by Liquid Metal Squeeze Infiltration Process KMS Manu, V Manoj, AG Arsha, RL Vishnu, VG Resmi, TPD Rajan, Transactions of the Indian Institute of Metals 71 (11), 2827-2832	2018
Role of Nanodispersoids on Corrosion Inhibition Behavior of Smart Polymer Nanocomposite Coatings SB Ulaeto, JK Pancrecious, R Rajan, TPD Rajan, BC Pai Advanced Polymeric Materials for Sustainability and Innovations, 321-366	2018
Role of Centrifugal Casting on Electrochemical Corrosion Behavior of A356-SiCp Composite in 3.5 wt.% NaCl S Maimunnisa, P Gore, TPD Rajan, VS Raja Journal of Materials Engineering and Performance 27 (8), 4210–4224	2018
Characterization and heat treatment of Al6061 with and without TiB2 SS Murugan, TPD Rajan Journal of Metallurgy and Materials Science 60 (2), 73-78	2018
Selectively Reinforced Aluminum Metallic Hybrid Composites by Liquid Metal Squeeze Infiltration Process AG Arsha, TPD Rajan, RL Vishnu, BC Pai, KM Sree Manu, VG Resmi, Springer Nature	2018
Studies on Tribological Characteristics of Centrifugally Cast SiCp-Reinforced Functionally Graded A319 Aluminium Matrix Composites BC Pai, TPD Rajan, AP Praveen, E Jayakumar The Indian Institute of Metals-IIM	2018
Developments in smart anticorrosive coatings with multifunctional characteristics SB Ulaeto, R Rajan, JK Pancrecious, TPD Rajan, BC Pai Progress in Organic Coatings 111, 294-314	2017
Effect of alumina nanoparticle on strengthening of Al-Si alloy through dendrite refinement, interfacial bonding and dislocation bowing KMS Manu, SA Kumar, TPD Rajan, MR Mohammed, BC Pai Journal of Alloys and Compounds 712, 394-405	2017
Microstructural Aspects of Particle-Assisted Breath Figures in Polystyrene–Alumina Hybrid Free Standing Film L Vijaya, R Rajan, A Raju, TPD Rajan, C Pavithran The Journal of Physical Chemistry C 121 (28), 15154-15159	2017

Fabrication and Characterization of Functionally Graded Metal and Polymer Composites by Sequential and Centrifugal Casting Techniques AS Karun Material Science and Technology Division, National Institute For	2017
Design and Processing of Bimetallic Aluminum Alloys by Sequential Casting Technique UTS PILLAI, K AKHIL S, BC PAI, S HARI, SE WILLIAMS, TPD RAJAN ASM	2017
Design and processing of bimetallic aluminum alloys by sequential casting technique AS Karun, S Hari, WS Ebhota, TPD Rajan, UTS Pillai, BC Pai Metallurgical and Materials Transactions A 48 (1), 279-293	2017
Smart electroactive polymers and composite materials TPD Rajan, JM Gladis Bio-based Plastics—Materials and Applications	2017
Optimization of drilling process on Al-SiC Composite using grey relation analysis KV Babu, M Uthayakumar, JTW Jappes, TPD Rajan Materials Science and Engineering: Concepts, Methodologies, Tools, and	2017
Processing and characterization of functionally graded metal and polymer composites E Jayakumar, TPD Rajan Cochin University of Science and Technology	2016
Structure and properties of squeeze infiltrated zirconia grade-aluminosilicate short fiber reinforced aluminum composites KMS Manu, TPD Rajan, BC Pai Journal of Alloys and Compounds 688, 489-499	2016
Liquid metal infiltration processing of metallic composites: a critical review KMS Manu, LA Raag, TPD Rajan, M Gupta, BC Pai Metallurgical and Materials Transactions B 47 (5), 2799-2819	2016
Dry sliding wear studies on SiC reinforced functionally graded aluminium matrix composites K Vinoth Babu, M Uthayakumar, TPD Rajan, JT Winowlin Jappes Sage	2016
Investigations on Dye-Doped PMMA based Optical Waveguides for Photonic Applications J Peter, M Kailasnath Cochin University of Science and Technology	2016
Processing and Characterization of Functionally Graded Aluminum (A319)—SiCp Metallic Composites by Centrifugal Casting Technique	2016

BCP E. Jayakumar, Jibin C. Jacob, T. P. D. Rajan, M. A. Joseph Metallurgical and Materials Transactions A 47 (8), 4306-4315  Adduct modified nano-clay mineral dispersed polystyrene nanocomposites as advanced corrosion resistance coatings for aluminum alloys A Raju, V Lakshmi, RKV Prataap, VG Resmi, TPD Rajan, C Pavithran, Applied Clay Science 126, 81-88	2016
Developments in Processing of Functionally Gradient Metals and Metal- Ceramic Composites TPD Rajan, BC Pai ChemInform 47 (10), no-no	2016
Dry sliding wear studies on SiC reinforced functionally graded aluminium matrix composites KV Babu, JTW Jappes, TPD Rajan, M Uthayakumar Proceedings of the Institution of Mechanical Engineers, Part L: Journal of	2016
Bulk processing of ZnO nanostructures via microwave assisted oxidation of mechanically seeded Zn dust for functional paints and coatings S Balanand, MJ Maria, TPD Rajan, AP Mohamed, S Ananthakumar Chemical Engineering Journal 284, 657-667	2016
Liquid Metal Infiltration Processing of Metallic Composites: A Critical Review BC PAI, KM SREE MANU, L AJAY RAAG, TPD RAJAN ASM	2016
Amino-functionalized Breath-Figure Cavities in Polystyrene–Alumina Hybrid Films: Effect of Particle Concentration and Dispersion TPD Rajan, A Raju, VG Resmi, C Pavithran, V Lakshmi, JK Pancrecious RSC	2016
Processing and Characterization of Functionally Graded Aluminum (A319)—SiCp Metallic Composites by Centrifugal Casting Technique TPD Rajan, BC Pai, JC Jacob, MA Joseph, E Jayakumar Springer	2016
International Journal of Manufacturing, Materials, and Mechanical Engineering NE Karkalos, AP Markopoulos, DE Manolakos, P Gadhari, P Sahoo,	2016
Advanced Composites for Aerospace, Marine, and Land Applications A Bhandakkar, R Prasad, SM Sastry, L Vázquez, E Hernández, Wiley: Wiley Online Library	2016
Enhancement in tribological behaviour of functionally graded SiC reinforced aluminium composites by centrifugal casting UTS Pillai, BC Pai, K Akhil S, A Farook, TPD Rajan, VR Rajeev Sage	2016

Processing of Functionally Graded Aluminum alloy and composite Engineering components by Centrifugal Casting and Squeeze casting	2016
Techniques ASKBCP T.P. D. Rajan, E. Jayakumar, K.M. Sree Manu Indian foundry Journal 62 (4), 21-25	
Enhancement in tribological behaviour of functionally graded SiC reinforced aluminium composites by centrifugal casting VRRAF Akhil S Karun, TPD Rajan, UTS Pillai, BC Pai Journal of Composite Materials 50 (16), 2255–2269	2016
Amino-functionalized breath-figure cavities in polystyrene–alumina hybrid films: effect of particle concentration and dispersion V Lakshmi, A Raju, VG Resmi, JK Pancrecious, TPD Rajan, C Pavithran Physical Chemistry Chemical Physics 18 (10), 7367-7373	2016
Design and fabrication of functionally graded in-situ aluminium composites for automotive pistons AG Arsha, E Jayakumar, TPD Rajan, V Antony, BC Pai Materials & Design 88, 1201–1209	2015
Processing of silica bonded porous SiC preform for metallic composites VG Resmi, KMS Manu, V Lakshmi, M Brahmakumar, TPD Rajan, Journal of Porous Materials 22 (6), 1445-1454	2015
Structure and Properties of Modified Compocast Microsilica Reinforced Aluminum Matrix Composite KMS Manu, K Sreeraj, TPD Rajan, RM Shereema, BC Pai, B Arun Materials & Design 88, 294–301	2015
Concentration dependent pore morphological tuning of kaolin clay foams using sodium dodecyl sulfate as foaming agent V Lakshmi, VG Resmi, A Raju, JP Deepa, TPD Rajan, C Pavithran, Ceramics International 41, 14263–14269	2015
Hafnium silicate: A new microwave dielectric ceramic with low thermal expansivity KP Surendran, TPD Rajan, MT Sebastian, J Varghese, T Joseph Royal Society of Chemistry	2015
Concentration dependent pore Morphological tuning of Kaolin Clay Foams using Sodium dodecyl sulfate as Foaming Agent TPD Rajan, JP Deepa, A Raju, BC Pai, VG Resmi, C Pavithran, Elsevier	2015
Processing of Silica Bonded Porous SiC preform for Metallic Composites TPD Rajan, M Brahmakumar, BC Pai, VG Resmi, KMS Manu, C Pavithran, Springer	2015

Processing of Porous SiC by Aluminum-Derived Binders and Sacrificial Porogen Leaching Method JP Deepa, TPD Rajan, BC Pai, RV Girija, C Pavithran, V Lakshmi	2015
Development of Al 319-Micro silica Metallic Composite by Squeeze Infiltration Technique	2015
KM Sree Manu, PS Rahul, L Ajay Raag, TPD Rajan, M Brahmakumar, Materials Science Forum 830, 489-492	
Structure and Properties of Electroless Cu and Ni-B coated B4C particle dispersed Aluminum Composites by Powder Metallurgy Technique JP Deepa, S Abhilash, TPD Rajan, C Pavithran, BC Pai Materials Science Forum 830, 480-484	2015
Processing and Characterization of Functionally Graded In Situ Aluminum Composite AG Arsha, E Jayakumar, TPD Rajan, BC Pai Materials Science Forum 830, 485-488	2015
Processing of Porous Ceramics Using Aluminium Derived Binders and Sacrificial Porogen Leaching Method VG Resmi, KM Sree Manu, JP Deepa, V Lakshmi, TPD Rajan, Materials Science Forum 830, 448-451	2015
Characteristics of Functionally Graded Bimetallic Aluminium Alloys by Sequential Casting Technique AS Karun, H Sanil, TPD Rajan, UTS Pillai, BC Pai Materials Science Forum 830, 383-386	2015
Processing and characterization of hypoeutectic functionally graded aluminum—SiC metal matrix composites E Jayakumar, JC Jacob, TPD Rajan, MA Joseph, BC Pai Materials Science Forum 830, 456-459	2015
Centrifugal casting and characterisation of primary silicon and Mg2Si dispersed aluminium functionally graded materials P Midhun Krishnan, S Hari, E Jayakumar, TPD Rajan, K Narayan Prabhu Materials Science Forum 830, 11-14	2015
Ultrasonic-Assisted Electroless Coating of Ni-B Alloy and Composites on Aluminum Alloy Substrates JK Pancrecious, JP Deepa, R Ramya, TPD Rajan, EB Gowd, BC Pai Materials Science Forum 830, 687-690	2015
Micropatterning of Polystyrene-Alumina Nanocomposite Film by Non-solvent Induced Phase Separation V Lakshmi, A Raju, TPD Rajan, C Pavithran, BC Pai Materials Science Forum 830, 569-572	2015

Hafnium silicate: a new microwave dielectric ceramic with low thermal expansivity J Varghese, T Joseph, KP Surendran, TPD Rajan, MT Sebastian Dalton Transactions 44 (11), 5146-5152	2015
Processing of Porous SiC by Aluminum-Derived Binders and Sacrificial Porogen Leaching Method VG Resmi, JP Deepa, V Lakshmi, TPD Rajan, C Pavithran, BC Pai International Journal of Applied Ceramic Technology 12 (5), 967–975	2015