**Dr. B.S.S. Daniel**

Professor

Department of Metallurgical and Materials Engineering

and Center of Nanotechnology

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**Research Interests**

* **Metallic Foam:** Synthesis and characterization of Aluminum alloy foam by liquid metallurgy route. Optimization of the foam structure of structural application such as light weight structures, impact energy absorption, etc.
* **Composite Materials**: Metal matrix and Ceramic matrix composites, Cast Composites (Alluminium, Magnesium), Hybrid processing(2-step casting), Insitu processing, Ultrasonication, Structure Property correlation.
* **Nanomaterials:** Synthesis of binary Co-Ni, Ni-Cu, Co-Cu alloys in the nanoscale, study of structure and magnetic properties
* **Energy Materials:** Synthesis and characterization of Dye-sensitized solar cells, Energy absorption
* **Metal Joining:** Optimization of Microstructure and Mechanical properties of SMAW welded boiler steels
* **Metallic Glass**: High temperature deformation with and without nano dispersoids, Stress relaxation behaviour, Free Volume Model, Correlation of free volume change to deformation and thermal history, Tracer diffusion.
* **Superplasticity**: Optimal Superplasticity in Alloys and Metallic glasses; Mesoscopic grain/interphase boundary sliding; Cavity nucleation, growth and coalescence.
* **Modelling**: Simulation of Metallurgical processes and fluid flow in porous media, ANN as a predictive tool for foam processing-property correlation, .

**Experience: Research & Teaching** (in reverse chronological order)

April 2014 till date: Professor

Dept. of Metallurgical & Materials Engineering and

Centre of Nanotechnology

Indian Institute of Technology Roorkee

Oct 2009 to March 2014: Associate Professor

Dept. of Metallurgical & Materials Engineering and

Centre of Nanotechnology

Indian Institute of Technology Roorkee

June 2004 to Sept 2009:Assistant Professor

Dept. of Metallurgical & Materials Engineering and

Center of Nanotechnology

Indian Institute of Technology Roorkee

March 2003 to May 2004: Professor and Head

 Dept of Mechanical Engineering

 KCG College of Technology, Chennai

 (Affiliated to Anna University)

July 2001 to Jan 2003: Post-doctoral Fellow

 Techniche Facultaet

 Christian Albrechts Universitaet

Kiel, Germany

Jan 2000 to June 2001: Post-doctoral Fellow

 Institute for Solid State and Materials Research (IFW)

## Dresden, Germany

July 1997 to Dec 1999: Project Engineer

 Department of Materials and Metallurgical Engineering

 Indian Institute of Technology Kanpur

**Education**

* **PhD** in Materials & Metallurgical Engineering (1997) form Indian Institute of Technology Kanpur. Thesis Title: Processing and Characterization of AlN/Al base Composites via directed melt Nitridation. Guide: Prof. V.S.R. Murthy & Prof. G.S. Murty
* **ME(I)** in Metallurgy (1992) from Indian Institute of Science, Bangalore. Thesis title: MMCs and CMCs via directed melt Infiltration. Guide: Prof. Vikram Jayaram
* **BSc** in Physics (1988) from Madras Christian College (Autonomous), Affiliated to Madras University, Chennai

**Courses taught at IIT Roorkee**

**Undergraduate Courses**

* 1. Computer Systems and Programming – 1st year B.Tech
	2. Structural Metallurgy - 1st year B.Tech
	3. Metallurgical Thermodynamics & Kinetics - 2nd year B.Tech
	4. Engineering Analysis & Design - 2nd year B.Tech
	5. Materials Science – 2nd year B.Tech
	6. Composite Materials – 3rd year B.Tech
	7. Principles of Metal Extraction – 3rd year B.Tech

**Postgraduate Courses**

* 1. Advanced Metallurgical Thermodynamics and Kinetics – M.Tech
	2. Materials Selection – M.Tech
	3. Composite Materials - M.Tech

**Administrative Positions**

1. Member, HAC (Dec 2017 -
2. Member, D-FAC
3. Member, DAC
4. Manager, ABN School, IIT Campus (June 2015 -
5. O.C. TEM Lab, (Aug 2017 -
6. O.C. SEM Lab, (Dec 2014 -
7. President, All India IIT Faculty Federation (AIIITFF) (March 22, 2014 – March 2016)
8. President, Faculty Forum, IIT Roorkee (June 1, 2013 – March 2017)
9. Member, BTech Syllabus Review Committee (2012-2013)
10. Member Secretary, Department Faculty Committee (May 2009 – Sept 2014)
11. O.C. Time Table (2008 – 2013)
12. Dy Chief Advisor, Sports (Jan 2011- Mar 2013)
13. Staff Advisor, Athletics (2005-2010)
14. Member Board of Studies (2008-2012)
15. O.C. Computer Lab, Thermodynamics Lab, SEM Lab
16. Head, Mechanical Engineering, KCG College (May 2003 – May 2004)

**Professional Body**

1. Member, The Minerals, Metals & Materials Society (TMS) , USA
2. Life Member, Indian Institute of Metals
3. Life Member, Materials Research Society of India

**Reviewer:**

1. Materials Science and Engineering A (MSEA)
2. Metallurgical and Materials Transaction B

**Journal Editorial Board**

1. Advanced Materials Research, Trans Tech Publications, Switzerland
2. Journal of Metallurgical and Materials Engineering (JoMME), STM Journal, Delhi

**Book Chapter or Books Edited:**

1. MMC, CMC amd Microstructural gradients by nitridation of Al alloys

V. Jayaram, B.S.S. Daniel, N. Nagendra, H.R. Muralidhar, Advanced Materials ’93, (1994) 621-624.

1. Nanomaterials and Devices: Processing and Applications, Editors: S.Ray, S.K.Nath, A.Kumar, R.C.Agarwala, V.Agarwala, G.P.Chaudhari, B.S.S.Daniel, Trans Tech Inc. Switzerland, 2009.
2. Advances in Materials Development: *A festschrift honouring Professor Subrata Ray*, Editor: B.S.S. Daniel, Materials Science Forum Vol. 736, Trans Tech Publications, Switzerland, 2012.
3. Advances in Materials and Processing: Challenges and Opportunities, Editors: B.S.S. Daniel and G.P. Chaudhari, Advanced Materials Research, Vol. 585, Trans Tech Publications, Switzerland, 2012.

**Patents Filed:**

1. An improved process for preparation of Magnesium based composite and an improved magnesium based in-situ composite

S. Ray, B.S.S. Daniel and D. Shivalingappa, Indian Patent Application No.:1384/Del/2007 dated 28/06/2007.

1. A process for controlling metal foam structure to obtain high strength

B.S.S. Daniel, S. Ray and R. Edwin Raj, Indian Patent Application

No.:2166/Del/2008 dated 16/09/2008.

**Research Projects:**

1. Insitu Aluminium alloy matrix composites by hybrid processing of melts

Grant Code: 22(0621)/13/EMR-II dated 26.02.2013 by Council of Scientific and Industrial Research for Rs. 14.92 lakhs.

1. A feasibility study to process Steel Foam,

Dated 21.11.2013 by Naval Research Board for Rs. 24.91 lakhs

**Thesis Supervised:**

 **PhD Thesis:**  Completed – 10; Ongoing – 5

 **MTech Thesis:** Completed – 10; Ongoing – 3

 **BTech Dissertations:** > 20

**PhD Thesis** (Awarded)**:**

1. D. Sivalingappa

In-situ Magnesium based composite – Development and Tribological behavior, August 2007

1. R. Edwin Raj

Processing and Mechanical Property Analysis of Closed-cell Aluminium Foam, May 2008

1. Raja Ram Prasad

Electrical Conductivity of Calcia Stabilized Zirconia prepared by Mechanical Alloying, April 2012

1. Sudhakar Panday

Nanocrystalline Co-Ni and Ni-Cu alloys: Synthesis and Studies on their Magnetic Properties, November 2012

1. H. Sivananda Nayaka

Severe Plastic Deformation of Magnesium Alloys using Accumulative Roll Bonding, March 2013

1. Chandan

Growth and Characterization of Lead-free Ferroelectric Thin Films and Heterostructures, March 2014

1. Vinod Kumar Jeenagar

Effect of Microstructural modification on the energy absorption capacity of Aluminium foam, June 2014

1. Santanu Das

Microstructural, Mechanical and Thermophysical properties of Th-U alloys, January 2015

1. Himanshu Panjiar

Effect of Nano-graphite coating on small DI Diesel Engine Performance, June 2016

1. Debasish Chatterjee

Advanced Thermomechanical study of AISI 301LN grade Steel for future Transport Applications, June 2017

**MTech Thesis:**

1. S. Ramakrishnan

Nanocrystal Development in Metallic Glass, June 2006

1. Pramod Kumar

High Strain Rate Mechanical Behaviour of Closed-cell Aluminium Foam, June 2009

1. S. Saravanan

Mechanical Property Evaluation of Age Hardened Aluminium Foam, July 2009

1. S. Prabahakaran

Influence of Surface Modification on Compressive Properties of Closed Cell Aluminium Foam, June 2011

1. Sujit Kumar Verma

Investigation of effect of Nanocrystallization on Mechanical and Shape Memory Effect of CuZnAl based Shape Memory Alloy Synthesized by High Energy Ball Milling, June 2011

1. Shejale Kiran Prakash

Application of Graphene Oxide and TiO2 in the fabrication of Solar Cell Module by Electrode Modification, June 2012

1. Harjeet Singh

Synthesis of Mesoporous Titanium Dioxide Film for Dye-sensitized Solar Cells, June 2012

1. Rahul Gupta

Ultrasonic assisted Casting of Aluminium Alloy Matrix Composites, June 2013

1. Ashutosh Pandey

Corrosion behavior of Closed-cell Aluminium Foam, June 2013

1. Neeraj

Nano-alloy Polymer Composite for Device Application, June 2013

1. Kapil Kaira

In-situ Aluminium Matrix Composites by Hybrid process, June 2014

1. Ruchi Pathak

In-situ phase development in Cast Aluminium Composite, May 2015

1. Abhishek Kumar

In-situ Aluminium composite by Ultrasonic assisted Solidification, May 2015

1. Surender

Finite Element Analysis of Closed Cell Metal Foam, May 2016

1. Amandeep Singh Dhiman

Improving Workability of in-situ Aluminium Composites, May 2016

1. Manish Yadav

Wear Resistance of Metal Matrix Composite via Mechanical Alloying, May 2017

1. Paresh Pawar

Correlation of Cellular (Metal Foam) Characteristics to Foam Properties, May 2017

1. Mohit Rajput

Control of Metal Foam Structure using Microwave Heating, May 2017

**SCORPUS: Publication Citation Index:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Author Name** | **Total documents cited** | **Total citations** | **h index** |
| B S S Daniel | 45 | 413 | 11 |

**Papers in Refereed Journals**

1. Directed melt oxidation and nitridation of aluminum alloys: a comparison

B.S.S.Daniel and V.S.R.Murthy, Materials & Design 16 (1995) 155-161.

1. Metal-ceramic composites via insitu methods

B.S.S.Daniel, V.S.R.Murthy and G.S.Murty, Journal of Materials Processing Technology 68 (1997) 132-155.

1. Microstructure and mechanical properties of SiC reinforced AlN/Al composites

B.S.S.Daniel and V.S.R.Murthy, ISIJ International 37 [10] (1997) 992-999.

1. Nickel Aluminide reinforced AlN/Al composites by pressureless infiltration

B.S.S.Daniel and V.S.R.Murthy, Materials Letters 37 (1998) 334-339.

1. Modelling of composite growth in Directed melt Nitridation process

B.S.S.Daniel, D.Mazumdar and V.S.R.Murthy, Metallurgical and Materials Transactions 30A [11] (1999) 2951-2958.

1. Unified theory of deformation for structural superplastics, metallic glasses and nanocrystalline materials

K. A. Padmanabhan and B. S. S. Daniel, Materials Science Forum Vol. 357-359 (2001) 371-380.

1. [On the high temperature creep and relaxation behaviour of Zr-based bulk metallic glasses](https://www.scopus.com/record/display.uri?eid=2-s2.0-0035559767&origin=resultslist&sort=plf-f&src=s&st1=Daniel&st2=B.S.S.&nlo=1&nlr=50&nls=afprfnm-t&sid=bca7a4adb66d68026bb2e96d61dbcf4f&sot=anl&sdt=aut&sl=84&s=AU-ID%28%22Daniel%2c+B.+S.Sundar%22+57196576601%29+OR+AU-ID%28%22Daniel%2c+B.+S.Sunder%22+55512143400%29&relpos=38&citeCnt=3&searchTerm=)

B.S.S. Daniel, M. Heilmaier, A. Reger-Leonhard, J. Eckert and L. Schultz, Materials Research Society Symposium Proceedings, 644 (2001) L110.7.1-6

1. Thermal Relaxation and High temperature Creep of Zr55Cu30Al10Ni5 Bulk Metallic Glass

B.S.S.Daniel, A.Reger-Leonhard, M.Heilmaier, J.Eckert and L.Schultz, Mechanics of Time-Dependent Materials 6 (2002) 193-206.

1. [Free volume evolution in bulk metallic glass during high temperature creep](https://www.scopus.com/record/display.uri?eid=2-s2.0-0042782981&origin=resultslist&sort=plf-f&src=s&st1=Daniel&st2=B.S.S.&nlo=1&nlr=50&nls=afprfnm-t&sid=bca7a4adb66d68026bb2e96d61dbcf4f&sot=anl&sdt=aut&sl=84&s=AU-ID%28%22Daniel%2c+B.+S.Sundar%22+57196576601%29+OR+AU-ID%28%22Daniel%2c+B.+S.Sunder%22+55512143400%29&relpos=36&citeCnt=2&searchTerm=)

S. Lenser, B.S.S. Daniel, V. Zöllmer, J. Erichsen, K. Rätzke, S. Deki, F. Faupel, Materials Research Society Symposium Proceedings, 754 (2003) 293-298.

1. Silver diffusion in Fe40Ni38Mo4B18 metallic glass under high vacuum

# S. Lenser, B.S.S. Daniel, V. Zöllmer, J. Erichsen, K. Rätzke, S. Deki, F. Faupel

 Scripta Materialia 48 [3] (2003) 275-279.

1. Development of Nanograined Metallic Materials by bulk and coating techniques

V.Agarwala, R.C. Agarwala, B.S.S. Daniel, Synthesis and Reactivity in Inorganic, Metal-organic and Nano-metal Chemistry, 36 [1] (2006) 3-16.

1. Aluminum Melt Foam Processing for Light Weight Structures

R. Edwin Raj and B.S.S. Daniel; Materials and Manufacturing Processes [22] (2007) 525-530.

1. Manufacturing challenges in obtaining tailor-made closed-cell structures in metallic foams

R. Edwin Raj, B.S.S. Daniel; International Journal for Advanced Manufacturing Technology [38] (2008) 605-612.

1. Structural property correlation with process parameters in the manufacture of closed-cell aluminum foam

R. Edwin Raj, B.S.S. Daniel, Journal of Manufacturing Engineering [3] (2008) 67-72.

1. Prediction of compressive properties of closed-cell aluminum foam using artificial neural network

R. Edwin Raj, B.S.S. Daniel, Computational Materials Science [43] (2008) 767-773.

1. Cryoginically synthesized mechanically alloyed Calcia stabilized Zirconia

Raja Ram Prasad, B.S.S. Daniel, Advanced Materials Research, [67] (2009) 271-276.

1. Structural and compressive property correlation of closed-cell aluminum foam

R. Edwin Raj, B.S.S. Daniel, Journal of Alloys and Compounds, [467] 1-2 (2009) 550-556.

1. Microstructural influence in closed cell Aluminum foam for structural application

R. Edwin Raj and B.S.S. Daniel, International Journal of Microstructure and Materials properties, Volume 4, Issue 4 (2009) 476-486.

1. Comparison of quasi-static and dynamic compression behavior of closed-cell aluminum foam

R. Edwin Raj, Venkitanarayanan Parameswaran and B.S.S. Daniel, Materials Science and Engineering: A, Volume 526, Issues 1-2 (2009) 11-15.

1. Accumulative roll bonding of wrought magnesium alloy

 H.S. Nayaka, B.S.S. Daniel, G.P. Chaudhari, Magnesium Technology, (2010) 593-597.

1. Customization of closed-cell aluminum foam properties using design of experiments

R. Edwin Raj, B.S.S. Daniel, Material Science and Engineering A, 528 (2011) 2067-2075

1. Synthesis of nanocrystalline Co-Ni alloys by precursor approach and studies on their magnetic properties

Sudhakar Panday, B.S.S. Daniel, P. Jeevanandam, Journal of Magnetism and Magnetic Materials

323 (2011) 2271-2280

1. Processing, Microstructure and Mechanical Properties of Cast In-Situ Mg-Al/Mg2Si Composites

D. Shivalingappa, B.S.S. Daniel, S. Ray, Materials Science and Engineering A, 541 (2012) 172-180

1. Highly tunable compositionally graded (1-x)Ba(Zr0.2Ti0.8)O3–x(Ba0.7Ca0.3)TiO3 multilayer with low temperature capacitance coefficients

Chandan Bhardwaj, B.S.S.Daniel, Davinder Kaur, Materials Letters 87 (2012) 172–175

1. Nanocrystalline Co82Ni18 Alloy: Synthesis and Magnetic Properties,

Sudhakar Panday, B.S.S. Daniel, P. Jeevanandam, Advanced Materials Research 585 (2012) 100-104

1. Effect of reinforcing phase inherited from another composite on the mechanical properties of cast magnesium base composite

D. Shivalingappa, B.S.S. Daniel and Subrata Ray,  Material Science and Engineering A, 541 (2012) 172-180

1. Conductivity measurement of calcia stabilized zirconia prepared by mechanical route

Raja Ram Prasad, K.L. Yadav, B.S.S. Daniel, Advanced Materials Research 585 (2012) 245-249

1. Application of Graphene Oxide and TiO2 in the fabrication of Dye sensitized solar cells module by electrode modification

Shejale K. Prakash, Harjeet Singh, Himanshu Panjiar, Sanjeev Manhas, B.S.S. Daniel, Advanced Materials Research 585 (2012) 255-259

1. Synthesis of TiO2 film for Dye-sensitized solar cells

Harjeet Singh, Shejale K. Prakash, Himanshu Panjiar, B.S.S. Daniel, Advanced Materials Research 585 (2012) 284-288

1. The effect of aging on energy absorption capability of closed cell aluminium foam

V.K. Jeenagar, Vivek Pancholi, B.S.S. Daniel, Advanced Materials Research 585 (2012) 327-331

1. Grain growth kinetics of accumulative roll bonded AZ61 alloy

H. Shivananda Nayaka, G.P. Chaudhari, B.S.S. Daniel, Advanced Materials Research 585 (2012) 387-391

1. Correlation of Mechanical and Microstructural properties of SMAW welded Cr-Mo Boiler steels subjected to different post weld heat treatment soaking times

S. Riyaz Ahmed, Ajai Agarwal, B.S.S. Daniel, Advanced Materials Research 585 (2012) 425-429

1. Synthesis and magnetic properties of nanocrystalline Co-Ni alloys: A Review

Sudhakar Panday, P. Jeevanandham, B.S.S. Daniel, Materials Science Forum 736 (2013) 229-240

## [Highly tunable compositionally graded (1−x)Ba(Zr0.2Ti0.8)O3–x(Ba0.7Ca0.3)TiO3 multilayer with low temperature capacitance coefficients](http://www.sciencedirect.com/science/article/pii/S0167577X12010919)

## Chandan Bhardwaj, B.S.S. Daniel, Davinder Kaur, Materials Letters, 87 (2012) 172-175

1. Pulsed laser deposition nand characterization of highly tunable (1-x)Ba(Zr0.2Ti0.8)O3–x(Ba0.7Ca0.3)TiO3 thin films grown on LaNiO3/Si substrate

Chandan Bhardwaj, B.S.S.Daniel, Davinder Kaur, Journal of Physics and Chemistry of Solids 74 (2013) 94–100

1. Synthesis and characterization of shape memory Nano alloy Cu74Zn22Al4 (wt %) using high energy ball milling Sujit Kumar Verma, B.S.S. Daniel, American International Journal of Research in Science, Technology, Engineering & Mathematics 2 (2013) 11-22
2. Synthesis and magnetic properties of nanocrystalline Co-Ni alloys: A review

S. Panday, P. Jeevanandam, B.S.S. Daniel, Materials Science Forum, 736 (2013) 229-240.

1. Synthesis and magnetic properties of nanocrystalline Co-Ni alloys: A review

 S. Panday, P. Jeevanandam, B.S.S. Daniel, Materials Science Forum, 736 (2013) 229-240.

1. Influence of cell wall microstructure on the energy absorption capability of aluminium foam

 V.K. Jeenagar, Vivek Pancholi, B.S.S. Daniel, Materials and Design 56, (2014) 454-459.

1. Modeling mechanical milling process for synthesis of graphite nanoparticles and their characterization

 H. Panjiar, R.P. Gakkhar, B.S.S. Daniel, Advanced Materials Research, 922 (2014) 586-591.

1. [Single-step synthesis of graphene-carbon nanofiber hybrid material and its synergistic magnetic behaviour](http://www.sciencedirect.com/science/article/pii/S0925838814015278)

R.K. Sahoo, P. Jeyapandiarajan, K. Devi Chandrasekhar, B.S.S. Daniel, A. Venimadhav, S.B. Sant, C. Jacob, Journal of Alloys and Compounds 615, (2014) 348-354

1. Characterization of microstructural, mechanical and thermal properties and ageing study of Th-3 wt.% U alloy

S. Das, R. Kumar, S. Kaity, S. Neogy, K.N. Hareendran, S.B. Roy, G.K. Dey, B.S.S. Daniel, G.P. Chaudhari, Nuclear Engineering and Design, 282 (2015) 116-125.

1. Effect of Different Post Weld Heat Treatments on the Mechanical properties of Cr-Mo Boiler Steel Welded with SMAW Process

S.R. Ahmed, L.A. Agarwal, B.S.S. Daniel, Materials Today: Proceedings, 2 [4-5] (2015) 1059-1066.

## [Strain-free graphite nanoparticle synthesis by mechanical milling](https://www.sciencedirect.com/science/article/pii/S0032591015000832)

Himanshu Panjiar, R.P. Gakkhar, B.S.S. Daniel, Powder Technology, 275, (2015) 25-29

1. Cellulose powder treatment on Cissus quadrangularis stem fiber-reinforcement in unsaturated polyester matrix composites

S. Indran, R.E. Raj, B.S.S. Daniel, S.S. Saravanakumar, Journal of Reinforced Plastics and Composites, 35 [3] (2016) 212-227.

1. Optimization of short Indian Areca fruit husk fiber (Areca catechu L.)–reinforced polymer composites for maximizing mechanical properties

J.S. Binoj, R.E. Raj, B.S.S. Daniel, S.S. Saravanakumar, International Journal of Polymer Analysis and Characterization, 21 [2] (2016) 112-122.

1. Microstructural evolution of as-cast Th-U alloys

S. Das, S.B. Roy, G.P. Chaudhari, B.S.S. Daniel, Progress in Nuclear Energy, 88 (2016) 285-296.

1. Characterization of microstructural, mechanical and thermophysical properties of Th-52U alloy

S. Das, R. Kumar, J. Banerjee, S.B. Roy, G.P. Chaudhari, B.S.S. Daniel, Journal of Nuclear Materials, 480 (2016) 223-234

1. Critical Parameters Affecting Mechanical Behavior of Natural Fiber Reinforced Plastics

A.V. Singhal, K. Debnath, I. Singh, B.S.S. Daniel, Journal of Natural Fibers, 13 (2016) 640-650

1. Comprehensive characterization of industrially discarded fruit fiber, Tamarindus indica L. as a potential eco-friendly bio-reinforcement for polymer composite

J.S. Binoj, R. Edwin Raj, B.S.S. Daniel, Journal of Cleaner Production, 142 Part 3, (2017) 1321-1331

## [Strengthening mechanisms in ultrasonically processed aluminium matrix composite with in-situ Al3Ti by salt addition](https://www.sciencedirect.com/science/article/pii/S1359836817328883)

Rahul Gupta, G.P. Chaudhari, B.S.S. Daniel, Composites Part B: Engineering, Volume 140, (2018) 27-34.

**Papers in Conferences**

1. Ceramic matrix and metal matrix composites by direct melt infiltration

S.P.Dhandapani, H.R.Muralidar, B.S.S.Daniel, V.Jayaram and M.K.Surappa, MRSI Symposium, Bangalore, Feb. 1992.

1. Microstructure and mechanical properties of directed melt nitridation composites

B.S.S.Daniel, V.S.R.Murthy and G.S.Murty, MRSI Symposium, IIT Kharagpur, Feb. 1994.

1. MMC, CMC and microstructural gradients by nitridation of Al alloys

V.Jayaram, B.S.S.Daniel, N.Nagendra and H.R.Muralidharan, Japanese Materials Society, Feb. 1993.

1. Intermetallic reinforced AlN/Al composites

B.S.S.Daniel, V.S.R.Murthy and G.S.Murty, ADCOMP-'96, IISc, Bangalore, Dec. 1996.

1. Mathematical modelling of Infiltration phenomena through a porous ceramic preform

B.S.S.Daniel, D.Mazumdar and V.S.R.Murthy, ICRAMP-'97, IISc, Bangalore, July 1997.

1. Unified theory of deformation for structural superplastics, metallic glasses and nanocrystalline materials

K. A. Padmanabhan and B. S. S. Daniel, ICSAM 2000, Orlando, Florida, USA,

Aug. 1-4, 2000.

1. High temperature Creep and Relaxation behaviour of Zr55Cu30Al10Ni5 bulk Metallic Glass

B.S.S.Daniel, A.Reger-Leonhard, M.Heilmaier, J.Eckert and L.Schultz; TDM 2000, Erlangen, Germany, Sept. 17-20, 2000.

1. Deformation Mechanism and Structural relaxation behaviour of Zr-based bulk metallic glass at elevated temperatures

B.S.S.Daniel, A.Reger-Leonhard, M.Heilmaier, J.Eckert and L.Schultz, Materials Week, Munich, Germany, Sept. 25-28, 2000.

1. On the high temperature creep and relaxation behaviour of Zr-based metallic glasses

B.S.S.Daniel, M.Heilmaier, A.Reger-Leonhard, J.Eckert and L.Schultz

MRS Symposium Proceedings, Vol. 644, 2001.

1. Free Volume Evolution in Bulk Metallic Glass during High Temperature Creep

B. S. S. Daniel, M. Heilmaier, B. Bartusch, J. Kanzow, K. Günther-Schade, K. Rätzke, J. Eckert and F. Faupel, MRS Symposium, Boston, Dec. 2-6, 2002.

1. Development of Nanograined Metallic Materials by bulk and coating techniques

V.Agarwala, R.C. Agarwala and B.S.S. Daniel;Proc. of the Intl. Conf. on Nanomaterials (Nano 2005), Ed. V. Rajendran, Sivakasi, July 13-15, 2005, p. 66-62.

1. Nanocrystalline amorphous composite by isothermal annealing of Zr-based metallic glass

S. Ramakrishnan, B.S.S. Daniel, ACTON-2005, IIT Roorkee, Roorkee, August 24-26, 2005.

1. Energetic criteria in mechanical alloying

Hariroop Gulati, B.S.S. Daniel, ACTON-2005, IIT Roorkee, Roorkee, August 24-26, 2005.

1. Development of metallic foam by gas dispersion in molten aluminum

R. Edwin Raj, M.S. Khan, P. Gupta, P.K. Ghosh, B.S.S. Daniel, Proceedings of the International Conference on Advanced Materials Design & Development, ICAMDD 2005, Dec. 14-16, 2005, p. 96-97

1. High temperature creep behaviour in bulk Metallic glass

B.S.S.Daniel, Indian Institute of Metals, ATM-NMD, IIT Madras, Chennai, Nov. 14-16, 2005.

1. Nanocrystalline dispersed metallic glass composite by annealing above Tg

S. Ramakrishnan, J. Raj Krishna and B.S.S. Daniel, Proc. of the Intl. Conf. on Advances in Materials and Materials Processing (ICAMMP 2006), Eds. U.K. Chatterjee and B.K. Dhindaw, Kharagpur, Feb. 3-6, 2006, p. 425-31.

1. Aluminum Melt Foam Processing for Light Weight Structures

R. Edwin Raj and B.S.S. Daniel, Proc. of the Intl. Conf. on Advances in Materials and Materials Processing (ICAMMP 2006), Eds. U.K. Chatterjee and B.K. Dhindaw, Kharagpur, Feb. 3-6, 2006, p. 877-83.

1. Composite materials characterization – then and now

B.S.S. Daniel, VSR Murthy Memorial Symposium, IIT Kanpur, Dec. 8-10, 2006.

1. Mechanical behaviour of calcia modified closed-cell aluminum foams processed by TiH2 decomposition

R. Edwin Raj, B.S.S. Daniel, International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering, IIT Madras, Dec. 18-20, 2006, pp 800-805.

1. Aluminum foam for ultra light weight structures and energy absorption

R. Edwin Raj, B.S.S. Daniel, International Conference on Recent Advance in Materials & Processing (ICRAMP), PSG Tech, Coimbatore, Dec. 22, 2006, pp 72-73.

1. Manufacturing challenges in obtaining tailor-made closed-cell structures in metallic foam

R. Edwin Raj and B.S.S. Daniel, First International & 22nd AIMTDR conference, IIT Roorkee, Roorkee, Dec. 21-23, 2006, pp. 503-508.

1. Undergraduate Metallurgical and Materials Engineering curriculum development

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