Bio-Data

Dr. Ujjwal Prakash

1. Name:	Dr. Ujjwal Prakash
2. Address:	Associate Professor Metallurgical and Materials Engineering Department Indian Institute of Technology Roorkee -247667 (Uttaranchal)
3. Date of Birth:	10-5-1964
4. Institute's Address:	Indian Institute of Technology, Roorkee -247667
5. Education:	B. Tech in the Year 1985 from Banaras Hindu University, Varanasi, India in Metallurgical Engineering PhD (Metallurgy) in the year 1990 from the University of Sheffield, Sheffield, UK.
6. Thesis Title:	Effect of Rapid Solidification on Structure and Properties of Intermetallic Phases.
7. Experience:	Research Experience: (Total 20 years)

1. 1988-1991: Research Associate at the University of Sheffield, UK
2 1992-1997: Scientist 'C' at Defence Metallurgical Research Laboratory, Hyderabad
3. 1997-2003: Scientist 'D' at Defence Metallurgical Research Laboratory, Hyderabad
4. 1999-2000: Humboldt Fellow at Max Planck Institute, Duesseldorf, Germany.
5. 2003-2006: Scientist 'E' at Defence Metallurgical Research Laboratory, Hyderabad
6. Asssociate Professor at IIT, Roorkee since June 2006.

8. Awards and Honours

1. (1985-1988) Scholarship from Department of Metallurgy, University of Sheffield.
2. (1985-1988) Overseas Research Students (ORS) Award from Committee of Vice-Chancellors and Principals, UK.
3. (1997) DRDO Technology Award for Development of iron aluminides containing carbon.
4. (1999) Award of Humbodt Fellowship.
5. (2000) Best Presentation Award at Annual Technical Meeting of Indian Institute of Metals

9. List of research projects Completed:

i) **Project Leader** for project on Development of Advanced High Temperature Aluminium Alloys via Rapid Solidification Processing at DMRL, Hyderabad. Funding agency: DRDO New Delhi, Project Amount 24.6 Lakhs, Project No. DMR-187, (1992-1996)

ii) **Project Member** for project on Development of iron aluminides through ingot Metallurgy at DMRL, Hyderabad. Funding agency DRDO, New Delhi, Project Amount 24.8 Lakhs, Project N0. DMR-212, (1993-1997).

10. Ongoing projects

i) Creep resistant ODS steels through powder forging

ii) Development of iron aluminides containing carbon, DST **Principal Investigator.**

11. PhD/M. Tech: Five PhD ongoing. Eight M. Tech Completed, Three M. Tech ongoing

12. List of Publications: Around 60 papers published. Complete List enclosed.

List of Publications:

1. Papers in Refereed Journals

1. Erosion behavior of Fe-Alloys for underwater components of hydroelectric power plant, A. Selokar, D. B.Goel, U. Prakash and A. Chaurasia, Transactions of Indian Institute of Metals, Accepted for publication.
2. A comparative study of cavitation erosive behavior of 23/8N Nitronic steel and 13/4 martensitic steel, A. Selokar, D. B.Goel and U. Prakash, Advanced Materials Report, Vol. 583 (2012) 554.
3. Fe-P soft magnetic properiesof iron for AC applications, S.K.Chaurasia , U. Prakash, K. Chandra and P. S. Misra, Advanced Materials Research, Vol 583 (2012) 289..
4. Comparisons of Sintered Technology with Powder forging for Fe-P soft magnetic alloys, S.K.Chaurasia , U. Prakash, K. Chandra and P. S. Misra, Materials Science Forum, Vol. 210 (2012) 297.
5. Development of P/M Fe-P soft magnetic alloys, S.K.Chaurasia , U. Prakash, K. Chandra and P. S. Misra, Bulletin of Materials Science, Vol. 35 (No.2) (2012) 191.
6. An air induction melting process for preparation of intermetallic alloy, R. G. Baligidad, U. Prakash and A. Radhakrishna, Indian Patent No. 242438, 2010.
7. Recycling of fine copper scrap into copper chromium alloys, , V.V.S. Prasad, Y. Satish Reddy, U. Prakash and R.G. Baligidad, Copper Topics, September 2009, pp6-17.

8. Thermo-mechanical processing of Cu-Cr alloys prepared by using electro slag crucible melting, V.V.S. Prasad, M. Sankar, Y. Satish Reddy, U. Prakash and R.G. Baligidad, Transactions of Indian Institute of Metals, Vol. 62 (No.1) (2009) 65.
9. Effect of Heat Treatment on structure and properties of P/M EIP 698P superalloy processed by Hot Isostatic Pressing, U. Prakash and D.V.V. Satyanarayana, Transactions of Powder Metallurgy Association of India, 34 (2008) 28.
10. Develoment of iron aluminides containing carbon, Transactions of Indian Institute of Metals, Vol. 61 (No.2) (2008) 1.
11. Effect of foaming characteristics of Al-based foams processed through P/M route, U. Prakash, P. Prasadachary, T. Raghu, M. Sudhakar Rao and T. Raghu, Transactions if Indian Institute of Metals, 60 (2007) 531.
12. Effect of composition on hydrogen permeation in Fe-Al alloys, U. Prakash, N. Pravathavarthini, and R.K. Dayal, Intermetallics, 15 (2007) 17.
13. Effect of process parameters on in-situ reduction of chromium oxide during electroslag crucible melting, V.V. Satya Prasad, Y. Satish Babu and U. Prakash, to be published in ISIJ International, vol. 6, 2006.
14. Production of Cu-Cr alloys by in-situ reduction of chromium oxide during air induction melting, V.V.S. Prasad, Y.S. Babu and U. Prakash, ISIJ International, 43 (2003)1280
15. Effect of carbon addition on hydrogen permeation in an Fe_3Al-based intermetallic alloy, N. Parvathavarthini, U. Prakash and R. K. Dayal, Intermetallics, 10 (2002) 329.
16. Electroslag cladding of low alloy steel with stainless steel, V. V. S. Prasad, A.S. Rao, U. Prakash and R.G. Baligidad, International journal of Welding nd Joining Technology, 7 (2002) 102.
17. Recycling of valuable scrap through electroslag processes, V. V. S. Prasad, A.S. Rao U. Prakash, V. R. Rao, P.K. Rao and K. M. Gupt, Transactions of Indian Institute of Metals, Vol. 55, Nos. 1-2, February-April 2002, pp9-14.
18. Machinable Iron aluminides containing carbon, U. Prakash and G. Sauthoff, Scripta Materialia, 44 (2001) 73.
19. Structure and Properties of Fe-Al-Ti intermetallic alloys, U. Prakash and G. Sauthoff, Intermetallics, 9 (2001) 107.
20. Production of Cu-Cr alloys by in-situ reduction of chromium oxide during electroslag crucible melting, V.V.S. Prasad, A.S. Rao and U. Prakash, Materials and Manufacturing Processes, 16 (2001) 209.
21. On elevated temperature stability of high carbon Fe-Al alloys, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A265 (1999) 301
22. Effect of Al-content on creep and stress rupture properties of high carbon Fe-Al alloys, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A269 (1999) 125.
23. Effect of thermomechanical processing and heat treatment on structure and mechanical properties of an electroslag remelted Fe-8.5wt%Al-1.1wt%C

alloy, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A269 (1999) 120
24. Microstructure and mechanical properties of P/M Al-Fe-V-Si and Fe-Al-Ce alloys, U. Prakash, T. Raghu, A. A. Gokhale and S. V. Kamat, Journal of Materials Science, 34 (1999) 5061.
25. The effect of Mg addition on microstructure and mechanical properties of a P/M Al-Fe-Ce alloy, U. Prakash, T. Raghu, S.V. Kamat ad A.A. Gokhale, Scripta Materialia, 39 (1998) 867.
26. Processing of a high carbon Fe_3Al-based intermetallic alloy, R.G. Baligidad, U. prakash and A. Radhakrishna, Intermetallics, 6 (1998) 765.
27. Effect of processing on mechanical properties of Fe-8.5wt%Al-1.1wt%Calloy, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A255 (1998) 162.
28. Effect of carbon addition on structure and mechanical properties of electroslag remelted Fe-20wt%Al alloy, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A249 (1998) 97.
29. Effect of process variables on electroslag crucible melting of Cu-Cr alloys, V.V.S. Prasad, A.S. Rao, U. Prakash, V.R. Rao, P. K. Rao and K. M. Gupt, ISIJ International, 38 (1998) 1390.
30. Alumina additions to fluoride slags for recycling of low oxygen high conductivity copper scrap through electroslag remelting, V.V.S. Prasad, A.S.Rao, U. Prakash, V.R. Rao, P.K. Rao and K. M. Gupt, ISIJ International, 38 (1998) 1387.
31. Mechanical properties of high carbon Fe_3Al-based intermetallic alloys, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A257 (1998) 235.
32. Effect of carbides on embrittlement of Fe_3Al-based intermetallic alloys, R.G. Baligidad, U. Prakash, A. Radhakrishna, V.R. Rao, P.K. Rao and N.B. Ballal, Scripta Materialia, 36 (1997) 667.
33. High temperature tensile and creep properties of a cast AIM and ESR intermetallic alloy based on Fe_3Al, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A231 (1997) 206.
34. Thermal stability and elevated temperature mechanical properties of electroslag remelted Fe-16wt%Al-(0.14-0.5)wt%C intermetallic alloys, R.G. Baligidad, U. Prakash and A. Radhakrishna, Materials Science and Engineering A, A230 (1997) 188.
35. Effect of carbon content on high temperature tensile properties of Fe_3Al-based intermetallic alloys, R.G. Baligidad, U. Prakash, V.R. Rao, P. K. Rao and N.B. Ballal, Scripta Materialia, 36 (1997) 105.
36. Effect of Titanium substitution on structure and properties of Fe_3Al-based intermetallic alloys, U. Prakash, K. Muraleedharan, R. A. Buckley, H. Jones and P.A. Shenton, Journal of Materials Science, 31 (1996) 1569.
37. Effect of hot working on room temperature mechanical properties and stress rupture behaviour of ESR processed F-16wt%Al intermetallic alloys, R.G. Baligidad, U. Prakash, V.R. Rao, P.K. Rao and N.B. Ballal, ISIJ International, 36 (1996) 1215.

38. Electroslag crucible melting for recycling of low oxygen high conductivity copper scrap, V.V.S. Prasad, V.R. Rao, U. Prakash, P.K. Rao and K.M. Gupt, ISIJ International, 36 (1996) 1113
39. Effect of carbon content on mechanical properties of electroslag remelted Fe_3Al-based intermetallic alloys, R.G. Baligidad, U. Prakash, V.R. Rao, P.K. Rao and N.B. Ballal, ISIJ International, 36 (1996) 1453.
40. Processing of Fe_3Al-based intermetallic alloys through electroslag remelting, R.G. Baligidad, U. Prakash, V.R. Rao, P.K. Rao and N.B. Ballal, ISIJ International, 36 (1996) 1448.
41. Recycling of superalloy scrap through electroslag remelting, V.V.S. Prasad, A.S. Rao, U. Prakash, V.R. Rao, P.K. Rao and K. M. Gupt, ISIJ International, 36 (1996) 1459.
42. Development of Fe_3Al-based intermetallic alloys by electroslagremelting, R.G. Baligidad, U. Prakash, V.R. Rao, P.K. Rao and N.B. Ballal, ISIJ International, 35 (1995) 443.
43. Electroslag remelting of Fe-28at.%Al intermetallic alloy, R.G. Baligidad, U. Prakash, V.R. Rao, P.K. Rao and N.B. Ballal, Ironmaking and Steelmaking, 21 (1994) 324.
44. Effect of Mo substitution on crystal structure of ordered Fe-Al alloys, U. Prakash, R.A. Buckley and H. Jones, Materials Science and technology, 9 (1993) 16.
45. A comparison of melting/splat quenching and chill block melt spinning for rapid solidification of late transition metal aluminides, U. Prakash, R.A. Buckley, H. Jones and C.M. Sellars, Materials Letters, 14 (1992) 274.
46. The role of antiphase boundary energy in influencing intergranular fracture in ordered Fe-Al-Cr intermetallic alloys, U. Prakash, R. A. Buckley, H. Jones and G.W. Greenwood, Philosophical Magazine Letters, 65 (1992) 129.
47. The effect of composition and heat treatment on fracture of Fe-Al-Cr intermetallic alloys, U. Prakash, R. A. Buckley, H. Jones and G. W. Greenwood, Philosophical Magazine A, 65 (1992) 1407.
48. The DO_{22} to $L1_2$ transition in Intermetallic systems, U. Prakash, R.A. Buckley, H. Jones and C.M. Sellars, Journal of Materials Science, 27 (1992) 2001.
49. The role of elasticity in determining antipase domain boundary anisotropy in ordered intermetallics, U. Prakash, R.A. Buckley, H. Jones and C.M. Sellars, Scripta Metallurgica et Materialia, 25 (1991) 2429.
50. On strain contrast from B2 antiphase domain boundaries in rapidly solidified Fe-32Al-15Mo alloy, U. Prakash, R.A. Buckley, H. Jones and C. M. Sellars, Scripta Metallurgica et Materialia, 25 (1991) 2249.
51. Structure and Properties of ordered intermetallics in the iron aluminium system (Review Article), U. Prakash, R.A. Buckley, H.Jones and C.M. Sellars, ISIJ International, 31 (1991) 1119.
52. Formation of B2 antiphase domains in rapidly solidified Fe-Al-X alloys, U. Prakash, R.A. Buckley and H. Jones, philosophical Magazine A, 64 (1991) 797.

53. Novel faulted structures in rapidly solidified Fe-Al-X alloys, U. Prakash, R.A. Buckley and H. Jones, Acta Metallurgica et Materialia, 39 (1991) 1677.
54. Effect of Mo substitution for Fe on B2 antiphase domain formation in rapidly solidified Fe-Al alloys, U. Prakash, R.A. Buckley and H. Jones, Materials Science and Engineering A, A133 (1991) 588.

2. Papers in Conference Proceedings

55. Hydrogen effects in iron aluminides containing carbon, U. Prakash, G. Sauthoff, N. Parvathavarthini and R.K. Dayal, in Inorganic Materials: Recent advances p.148, editors D. Bahadur, S. Vitta and O. Prakash, Narosa Publishing House New Delhi, 2004
56. Electroslag remelting of Fe_3Al alloys, R.G. Baligidad, U. Prakash, A. Radhakrishna, V.R. Rao, P.K. Rao and N.B. Ballal in Nickel and iron aluminides: Processing and Properties: edited by S.c. Deevi, V.K. Sikka, P.J. Maziasz and R.W. Cahn, American Society of Metals, Ohio, USA, p177..
57. Effect of Mo substitution on ordered Fe-Al alloys, U. Prakash, R.A. Buckley and H. Jones in High Temperature Intermetallics, Institute of Metals, London, p181, (1991)
58. Mechanical Properties of Fe-Al-X alloys, U. Prakash, R.A. Buckley and H. Jones in High Temperature Ordered Intermetallic alloys IV, Materials Research Society Symposium Proceedings, Vol. 213, p581 (1991).

4. Reports

The following reports were supported by DRDO New Delhi

59. Effect of heat treatment on structure and properties of P/M EIP 698P superalloy processed by Hot Isostatic Pressing, U. Prakash, P. Prasadachary, D.V.V Satyanarayana and M. Kumar, DMRL Technical Report No. TR 2006 402 (2006).
60. Effect of process variables on foaming characteristics of Al-based foams processed through P/M route, U. prakash, P. Prasadachary, T. Raghu, M. Sudhakar Rao, V.V. Bhanu Prasad and K..S. Raju, DMRL Technical Report No.TR 2005 375 (2005).
61. Structure and Properties of P/M EIP 698P superalloy processed by Hot Isostatic Pressing, U. Prakash, P. Prasadachary and M. Kumar, DMRL Technical Report No. TR 2004 355 (2004).
62. Design and Development of a unit for Spray Forming of aluminium based metal matrix composites, U. Prakash, P. Prasadachary and M. Kumar, DMRL technical Report No. 2004 356 (2004).
63. Design and Development of an unit for Spray Forming of Al alloys, U. Prakash, P. Prasadachary, T. Sudhakar and K. Pandari, DMRL Technical Report No. 99261 (1999)

64. P/M processing of dispersion strengthened aluminium alloys for elevated temperature applications, U. Prakash, T. Raghu, A. Gokhale, T.Sudhakar and P. Prasadachary, DMRL Technical Report No. 98329 (1998).
65. Development of iron aluminides based on Fe_3Al by ingot metallurgy route, R.G. Baligidad, A. Radhakrishna, U. Prakash, T. Suresh Bapuji, Y. Satish Babu and M. Chandrashekhar, DMRL Technical Report No. 98239 (1998).
66. Project closing report for DMR-187. **Served as Project Leader**. Project Title: Development of advanced high temperature aluminium alloys by rapid solidification processing, U. Prakash, T. Raghu, A. Gokhale, T. Sudhakar, Prasadachary and K. Pandari (1997)
67. Project closing Report for DMR-212. Project Title: Development of Intermetallic alloys based on Fe_3Al through electroslag remelting, R.G. Baligidad, A. Radhakrishna and U. Prakash (1997).
68. Recycling of superalloy scrap through electroslag remelting using nonconsumable electrode, V.V.S. Prasad, A.S. Rao, U. Prakash and R.G. Baligidad, DMRL Report No. 97219 (1997).

Patents: An air induction melting process for preparation of intermetallic alloy, R. G. Baligidad, U. Prakash and A. Radhakrishna, Indian Patent No. 242438, 2010.