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via tailoring Ni/Ti-rich precipitates and heterogeneous structure, Materials Science and Engineering: A, 878 (2023) 145223.

List of Publications and Patents

1. **Harsh Jain**, Yagnesh Shadangi, Vikas Shivam, Dibyendu Chakravarty, N. K. Mukhopadhyay, Devendra Kumar "Phase evolution and mechanical properties of non-equiatomic Fe–Mn–Ni–Cr–Al–Si–C high entropy steel", 834 (2020) 155013, JALCOM. (Part of chapter 4).

2. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "High entropy steel processed through mechanical alloying and spark plasma sintering: alloying behaviour, thermal stability and mechanical properties", 859 (2022) 144029, MSEA. (Part of chapter 5)

3. **Harsh Jain**, Yagnesh Shadangi, D. Chakravarty, K. Chattopadhyay, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Low-density $Fe_{40}Mn_{19}Ni_{15}Al_{15}Si_{10}C_1$ high entropy steel processed by mechanical alloying and spark plasma sintering: Phase evolution, microstructure and mechanical properties", 869 (2023) 144776, MSEA. (Part of chapter 3).

4. N. K. Mukhopadhyay, **Harsh Jain**, Yagnesh Shadangi, Ashutosh Kumar Dubey, "A dual-phase non-equiatomic high entropy alloy and a method of preparation thereof". Patent application no. 202311061309, 12-09-2023 (Indian patent). (Part of chapter 6).

5. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Microstructure and mechanical properties of light weight precipitation-strengthened $Fe_{4o}Mn_{20}Cr_{20}Ti_{10}Al_{10}$ High Entropy Alloy Processed by mechanical alloying and spark plasma sintering". MSEA (about to submit) (part of chapter 6).

6. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Alloying behaviour, phase transformation and mechanical properties of light weight dual-phase $Fe_{40}Mn_{20}Cr_{15}Ti_{10}Ni_5Al_{10}$ High Entropy Alloy processed by mechanical alloying and spark plasma sintering". (Under preparation) (Advanced Powder Technology) (part of chapter 6).

7. **Harsh Jain**, Yagnesh Shadangi, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Microstructural and mechanical properties of light weight $Fe_{40}Mn_{20}Ni_{10}Cr_{10}Ti_{10}Al_{10}$ High Entropy Alloy processed by mechanical alloying and spark plasma sintering". (Under preparation) (JALCOM) (part of chapter 6).

8. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Thermal stability, mechanical properties and strengthening mechanism of low density $Fe_{40}Mn_{14}Ni_{10}Cr_{10}Al_{15}Si_{10}C_1$ High entropy steel". (Under preparation) (JALCOM) (part of chapter 4).

9. **Harsh Jain**, Yagnesh Shadangi, Priya Singh, Kausik Chattopadhyay, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Tribology, and biocompatibility studies of High entropy steels". (Under preparation) (Biomaterial Advances) (Part of chapter 3, 4, and 5).

10. **Harsh Jain**, Yagnesh Shadangi, Priya Singh, Kausik Chattopadhyay, Ashutosh Kumar Dubey, N. K. Mukhopadhyay "Tribology, and biocompatibility studies of non-equiatomic Fe-based High entropy alloys". (Under preparation) (Biomaterial Advances) (Part of chapter 6).

List of Conferences and Workshops

1. **Harsh Jain**, Yagnesh Shadangi, Vikas Shivam, Dibyendu Chakravarty, N. K. Mukhopadhyay, Devendra Kumar, "Mechano-chemical synthesis, characteristics and mechanical properties of non-equiatomic Fe-Mn-Ni-Cr-Al-Si-C high entropy alloys", 26th International Symposium on Metastable, Amorphous and Nanostructured Materials (**ISMANAM-2019**), July 8 - 12, 2019, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India.

2. **Harsh Jain**, Yagnesh Shadangi, Vikas Shivam, Dibyendu Chakravarty, N. K. Mukhopadhyay, Devendra Kumar, "Phase evolution, microstructure of non-equiatomic Fe-Mn-Ni-Al-Si-C, Fe-Mn-Ni-Ti-Al-Si-C high-entropy alloys", **IWHEM 2020** 3rd International Workshop on High Entropy Materials, 7-8 March, 2020, IIT Kanpur, India.

3. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay, "Phase Evolution, Thermal Stability and Mechanical Properties of Non-equiatomic FeMnNiTiAlSiC High Entropy Steel", 76th Annual Meeting of the Indian Institute of Metals (**IIM-ATM**), 13-16 November 2022 at the Ramoji film city Hyderabad, India.

4. **Harsh Jain**, Y. Shadangi, D. Chakravarty, K. Chattopadhyay, Ashutosh Kumar Dubey, N. K. Mukhopadhyay, "Phase Evolution, and Mechanical Properties of Low-density

$Fe_{40}Mn_{19}Ni_{15}Al_{15}Si_{10}C_1$ High Entropy Steel Processed by Powder Metallurgy", The International conference on Metallurgical Engineering and Centenary Celebration (**METCENT 2023**), 26th- 28th, 2023, at Department of Metallurgical Engineering IIT (BHU) Varanasi, India.

5. **Harsh Jain**, Yagnesh Shadangi, Ashutosh Kumar Dubey, N. K. Mukhopadhyay, "Comparative study on various non-equiatomic High Entropy Steel processed by Mechanical Alloying and Spark Plasma Sintering", 11th Pacific Rim International Conference on Advanced Materials and Processing (**PRICM11**), 19-23 November 2023, Jeju Island, South Korea.

6. **Harsh Jain**, Yagnesh Shadangi, Dibyendu Chakravarty, Ashutosh Kumar Dubey, N. K. Mukhopadhyay, "Novel $Fe_{40}Mn_{14}Ni_{10}Cr_{10}Al_{15}Si_{10}C_1$ High Entropy Steel Processed by Mechanical Alloying and Spark Plasma Sintering: Structural, Microstructural, and Mechanical properties", 34th Annual General Meeting of MRSI and 5th Indian Materials Conclave, 12-15 December 2023, at IIT (BHU), Varanasi in collaboration with Materials Research Society of India (**MRSI**).

7. Attended a short-term course on "New Generation Functional Materials and Their Applications (**NFMA-2021**)", Department of Materials Science and Engineering, National Institute of Technology, Hamirpur, Himachal Pradesh, India, from 03/02/2021 to 07/02/2021 by **Harsh Jain**.