Annexure A

Appendix A: List of Publication

Publications

1. Bhanu V, Gupta A, Pandey C. Investigation on joining P91 steel and Incoloy 800HT through gas tungsten arc welding for Advanced Ultra Super Critical (AUSC) power plants. J Manuf Process 2022; 80:558–80. https://doi.org/10.1016/J.JMAPRO.2022.06.029. (SCI, IF = 6.2)
2. Bhanu V, Pandey C, Gupta A. Dissimilar joining of the martensitic grade P91 and Incoloy 800HT alloy for AUSC boiler application: Microstructure, mechanical properties and residual stresses. CIRP J Manuf Sci Technol 2022; 38:560–80. https://doi.org/10.1016/j.cirpj.2022.06.009. (SCI, IF = 4.8)
3. Bhanu V, Gupta K, Kumar SR, Gupta A, Pandey C. Influence of Buttering Layers on the Microstructural Evolution and Mechanical Behavior of Incoloy 800HT and P91 Steel welded joint. Archives of Civil and Mechanical Engineering 2024. https://doi.org/10.1007/s43452-024-01044-y. (SCI, IF = 4.4)
4. Bhanu V, Gupta A, Pandey C. Activated-TIG Weld Characteristics of P91 Joint for Advanced Ultra Super critical (AUSC) Power Plant Applications. J Mater Eng Perform 2023. https://doi.org/10.1007/s11665-023-08814-4. (SCI, IF = 2.3)
5. Bhanu V, Manoj J, Gupta A, D Fydrych, Pandey C. Microstructural evolution and mechanical behavior of activated tungsten inert gas welded joint between P91 steel and Incoloy 800HT. The International Journal of Advanced Manufacturing Technology 134 (1):223-244 2024. https://doi.org/10.1007/s00170-024-14117-2. (SCI, IF = 2.9)
6. Bhanu V, Fydrych D, Gupta A, Pandey C. Study on Microstructure and Mechanical Properties of Laser Welded Dissimilar Joint of P91 Steel and INCOLOY 800HT Nickel Alloy. Materials (Basel) 2021; 14:5876. https://doi.org/10.3390/ma14195876. (SCI, IF = 3.4)
7. Bhanu V, Gupta A, Pandey C. Role of A-TIG process in joining of martensitic and austenitic steels for ultra-supercritical power plants -a state of the art review. Nucl Eng Technol 2022. https://doi.org/10.1016/j.net.2022.03.003. (SCI, IF = 2.7)
8. Bhanu V, Pandey SM, Gupta A, Pandey C. Dissimilar weldments of P91 and Incoloy 800HT: Microstructure, mechanical properties, and residual stresses. Int J Press Vessel Pip 2022; 199:104782. https://doi.org/10.1016/j.ijpvp.2022.104782. (SCI, IF = 3)
9. Bhanu V, Malakar A, Gupta A, Pandey C. Electron beam welding of P91 steel and Incoloy 800HT and their microstructural studies for advanced ultra super critical (AUSC) power plants. Int J Press Vessel Pip 2023; 205:105010. https://doi.org/10.1016/j.ijpvp.2023.105010. (SCI, IF = 3)
10. Bhanu V, Gupta A, Pandey C. Microstructure-linked mechanical properties of P91-Incoloy 800HT dissimilar metal weld. The Welding Journal 2024. https://doi.org/10.29391/2024.103.025. (SCI, IF = 2.2)
11. Bhanu V, Pandey SM, Gupta A, Pandey C. Dissimilar IN82 Buttered P91 and Incoloy 800HT Joint for AUSC Boilers: Microstructural Characteristics and Mechanical Properties. Metallurgical and Materials Transactions A 2024. https://doi.org/10.1007/s11661-024-07653-9. (SCI, IF = 2.2)

International Conferences Attended

- **ICRAM-2022** (International Conference on Recent Advances in Mechanical Engineering) at IIT JODHPUR

  Conference Dates: 25-27 **August 2022, MODE: Virtual Paper Presentation**

Published in Proceedings of the International Conference in Recent Advances in Mechanical Engineering (e-Book)

Paper Title: *A Study Comparing the Depth of Penetration for A-TIG Bead on Plate Welds for P91 and Incoloy 800HT*

Authors: **Vishwa Bhanu**, Ankur Gupta, and Chandan Pandey

ISBN: 978-93-91355-76-0 (e-Book)

Page Number: 183-188

- **COPEN-12** (International Conference on Precision, Micro, Meso and Nano Engineering) at IIT KANPUR

  Conference Dates: 08-10 **December 2022, MODE: Attended for poster presentation**

  Poster Title: *Study of joining P91 steel and Incoloy 800HT through electron beam welding for Advanced Ultra Super Critical (AUSC) power plants*

  Authors: **Vishwa Bhanu**, Chandan Pandey, and Ankur Gupta

- **IIW-2023** (The 76th IIW Annual Assembly and International Conference on Welding and Joining) in SINGAPORE

  Conference Dates: 16-21 **July 2023, MODE: Attended for paper presentation**

  Published in Proceedings of the 76th IIW Annual Assembly and International Conference on Welding and Joining (IIW 2023)

  Publisher by Research Publishing (S) Pte Ltd

  Paper Title: *Activated-TIG Weld Characteristics of Incoloy 800HT Joint for Advanced Ultra Supercritical (AUSC) Power Plant Applications Activated-TIG Weld Characteristics of Incoloy 800HT Joint for Advanced Ultra Supercritical (AUSC) Power Plant Applications*

  Authors: **Vishwa Bhanu**, Ankur Gupta, and Chandan Pandey

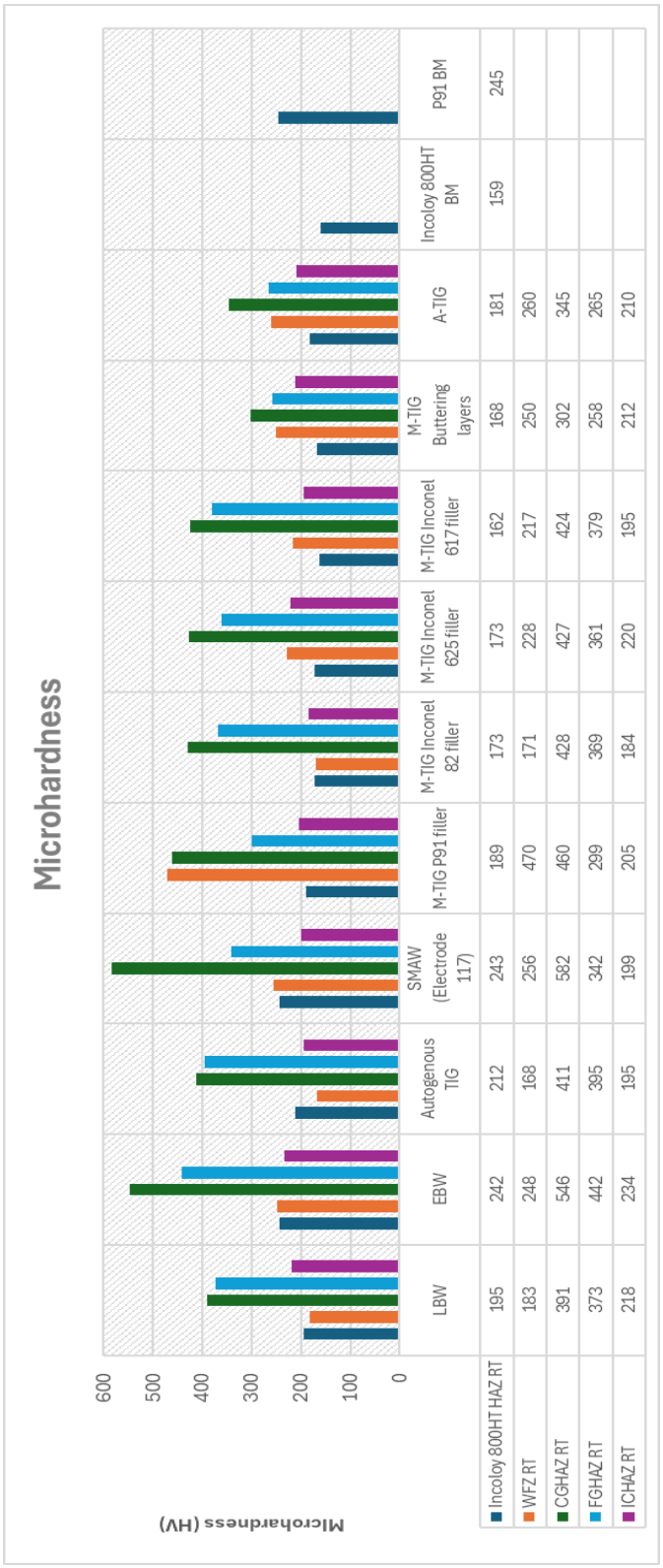
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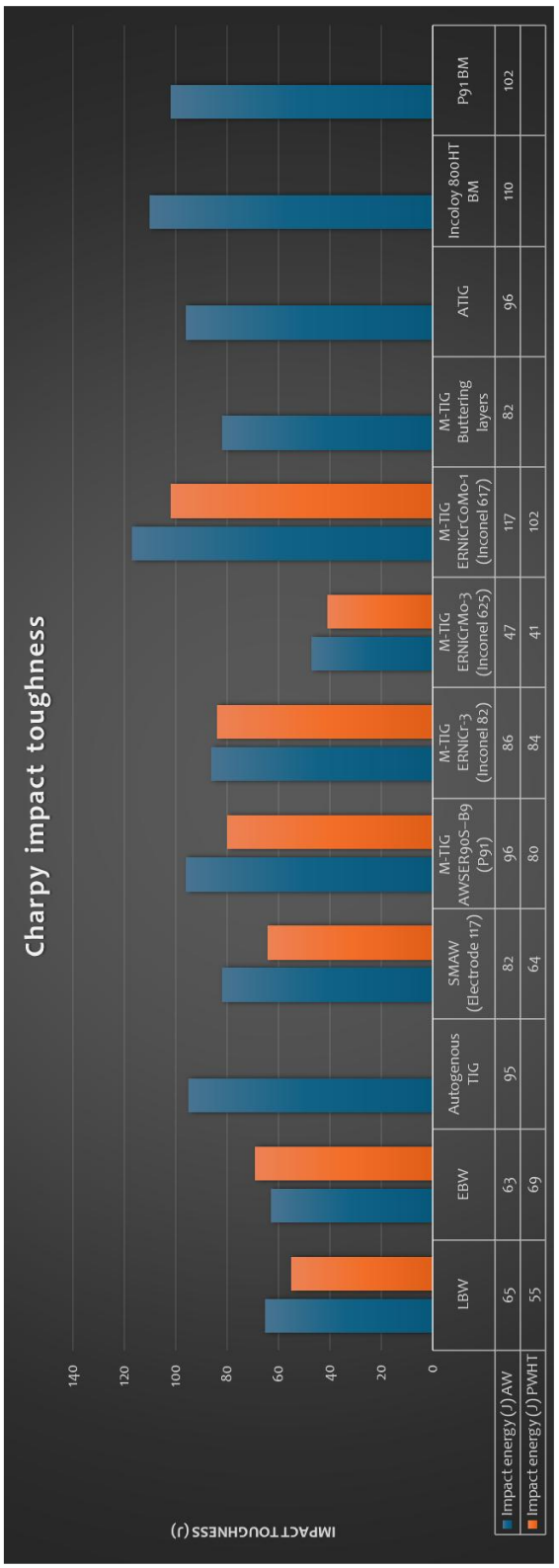
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Appendix B: Summary of tensile strength

Welding techniques	Test Temperature (°C)	Specimen	Ultimate tensile strength (MPa)	Percentage Elongation (%)	Fracture location
	RT	AW	550	31	IN 800HT HAZ
	RT	AW subsize	562	22	BM
	RT	PWHT	549	32	IN 800HT HAZ
EBW	RT	PWHT subsize	592	21	WFZ
	RT	AW	546	25	IN 800HT HAZ
	RT	AW subsize	565	22	WFZ
	RT	PWHT	576	27	BM
LBW	RT	PWHT subsize	549	15	WFZ
Autogenous TIG	RT	AW	460	34	WFZ
	RT	AW	546	33	BM
	RT	AW subsize	561	15	IN 800HT HAZ
SMAW ENiCrCoMo-1	RT	PWHT	576	27	WFZ
(Electrode 11)	RT	PWHT subsize	540	20	WFZ
	RT	AW	538	40	BM
M-TIG	RT	AW subsize	609	30	IN 800HT HAZ
AWSER90S–B9	RT	PWHT	525	37	IN 800HT HAZ
(P91)	RT	PWHT subsize	620	33	IN 800HT HAZ
	RT	AW	570	35	BM
	RT	AW subsize	583	33	WFZ
M-TIG ERNiCr-3	RT	PWHT	650	31	BM
(INCONEL 82)	RT	PWHT subsize	587	29	WFZ
	RT	AW	554	28	BM
	RT	AW subsize	510	21	IN 800HT HAZ
M-TIG ERNiCrMo-3	RT	PWHT	564	27	BM
(INCONEL 625)	RT	PWHT subsize	679	24	IN 800HT HAZ
	RT	AW	532	40	BM
	RT	AW subsize	550	57	WFZ
M-TIG ERNiCrCoMo-1	RT	PWHT	544	32	BM
(INCONEL 617)	RT	PWHT subsize	584	33	WFZ
	RT	AW	439	22	BM
	RT	AW subsize	397	24	WFZ
M-TIG Buttering	HT	650°C	134	25	P91 BM
layers	HT	550°C	287	37	BM
	RT	AW	585	38	BM
	RT	AW subsize	706	36	WFZ
	HT	650°C	178	27	P91 BM
ATIG	HT	550°C	306	48	BM

Appendix C: Summary of microhardness and Charpy impact toughness





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