Details of Research Publications

Journal publications

1."Correlative high-resolution imaging of hydrogen in Mg2Ni hydrogen storage thin films", D Andersen, H Chen, S Pal, L Cressa, O De Castro, T Wirtz, G Schmitz, S Eswara. International Journal of Hydrogen Energy, Volume 48, Issue 37, 30 April 2023, Pages 13943-13954. **Citation-04, IF-7.2**

2. "Dose and dose rate effects on the microstructural and mechanical stability of long-range ordered precipitates in Inconel 718", H.T. Vo, S. Pal, N. Almirall, S. Tumey, G.R. Odette, S.A. Maloy, P. Hosemann. Materials Science and Engineering: A, Volume 870, 12 April 2023, 144916. **Citation-01, IF-6.4**

3. "Imaging and Quantification of Hydrogen in Materials: SIMS Based Correlative Microscopy", Santhana Eswara, Dustin Andersen, Soupitak Pal, Tom Wirtz, Microscopy and Microanalysis, Volume 28, Issue S1, 2022, Pages 1606-1607. **Citation-00, IF-2.8**

4. "On a New Ti-carbooxinitride Redistribution Driven Microcrack Healing Mechanism in an Annealed 14YWT Nanostuctured Ferritic Alloy." M. E. Alam, S. Pal, N. J. Cunningham, G. R. Odette, Acta Materialia, 210 (2021) 116842. **Citation-03, IF-9.4**

5. "Quantification of hydrogen in nanostructured hydrogenated passivating contacts for silicon photovoltaics combining SIMS-APT-TEM: A multiscale correlative approach." , Soupitak Pal, *, Jenifer Barrirero , Mario Lehmann , Quentin Jeangros , Nathalie Valle , Franz-Josef Haug , Aïcha Hessler-Wyser , C.N. Shyam Kumar , Frank Mücklich , Tom Wirtz , Santhana Eswara, Applied Surface Science, 555 (2021) 149650. **Citation-07, IF-9.4**

6. "Rare-earth- and aluminum-free, high strength dilute magnesium alloy.", Md Ershadul Alam1, Soupitak Pal, Ray Decker, Nicholas C. Ferrer, Marko Knezevic & Irene. J. Beyerlein, Scientific Report, 10(1), (2020) 1-15. **Citation-16, IF-4.6**

7 "The mechanistic implications of the high temperature, long time thermal stability of nanoscale Mn-Ni-Si precipitates in irradiated reactor pressure vessel steels." N Almirall, PB Wells, S Pal, PD Edmondson, T Yamamoto, K Murakami, GR Odette, Scripta Materialia, 181, (2020) 134-139. **Citation-24, IF-6.0**

8. "Photoluminescence of ZnO/ZnMgO Heterostructure Nanobelts grown by MBE", Oscar Kennedy, Maximilian Zapf, Jean-Nicolas Audinot, Soupitak Pal, Santhana Eswara, Tom W irtz, Carsten Ronning, Paul Warburton, Nanotechnology, 31 (2020) 135604 (7pp). **Citation-10, IF-3.5**

9. "Effect of Microstructure on The Hardness and Dry-sliding Behaviour of Electroless Ni-B Coating"-Soupitak Pal, Vikram Jayram, Materialia, December 2018, vol 4, pp-47-64, DOI: 10.1016/j.mtla.2018.09.004. **Citation-37, IF-3.4**

10. "Sharpness and Intensity Modulation of Metal-Insulator Transition in ultrathin VO2 films by interfacial structure manipulation", Ryan McGee, Ankur Goswami, Soupitak Pal, Kalvin Schofield, Syed Asad Manzoor Bukhari, and Thomas Thundat, Physical Review Materials, 2, 034605, 2018, 1-10. **Citation-20, IF-3.4**

11. "Texture Evolution and Microcracking Mechanisms in As-Extruded and Cross-Rolled Conditions in a 14YWT Nanostructured Ferritic Alloy", authors: S. Pal, M. E. Alam, S. A. Maloy, D. T. Hoelzer, G. R. Odette, Acta Materialia,152(2018) 1-20. **Citation-33, IF-9.4**

12. "Characterization of Thermal Stability and High-Temperature Tribological Behavior of Electroless Ni-B Coating," Soupitak Pal, Rohit Sarkar, Vikram Jayaram, Metallurgical and Materials Transaction A, DOI: 49(8), 2018, 3217-3236. **Citation-25, IF-2.8**

13. "Effect of interfaces on mid-infrared photothermal response of MoS 2 thin films grown by pulsed laser deposition", A Goswami *, P Dhandaria, S Pal, F Khan ,Ž Antić , R Gaikwad , K Prashanthi , T Thundat *, Nano-Research, 1-14, July 2017, 10, 10, 3571-3584. **Citation-31, IF-9.9**

14. "On delamination toughening of a 14YWT nanostructured ferritic alloy" ME Alam, S Pal, SA Maloy, GR Odette, Acta materialia, 2017, 136, 61-73. **Citation-26, IF-9.4**

15. "Tensile Deformation and Fracture Properties of a 14YWT Nanostructured Ferritic Alloy", M.E. Alam, S. Pal, G.R. Odette, S.A. Maloy, D.T. Hoelzer, - Material Science and Engineering A, 2016, 675, 437-448. **Citation-49, IF-6.4**

16. "Effect of tube processing methods on the texture and grain boundary of 14YWT nanostructured ferritic alloy". E. Aydogan, S. Pal, O. Anderoglu, S.A. Maloy, S.C. Vogel, G.R. Odette, J.J. Lewandowski, D.T. Hoelzer, I.E. Anderson, J.R. Rieken - Material Science and Engineering A, 2016, 661, 222-232. **Citation-44, IF-6.4**

17. "Characterization of Phase Transformation and Microstructural Development of Electroless Ni- B Coating" –S Pal, N Verma, V Jayaram, S K Biswas, and Y Riddle. Material Science and Engineering A, 2011, 528, 8269-8276. **Citation-74, IF-6.4**

18. "Effect of Phases on the Frictional Properties of Ni-B Nano-composite Coating"- Soupitak Pal, Vikram Jayaram, Sanjay Kumar Biswas, and Yancy Riddle, Advances in Science and Technology, 2010, 66, 120-125. **Citation-01, IF-1.1**

Book Chapter:

1. "Microstructure, Texture and Mechanical Properties of the 14YWT Nanostructured Ferritic Alloy" S. Pal, M. E. Alam, G. R. Odette, S. A. Maloy, D. T. Hoelzer, J.J. Lewandowski 10.1007/978-3-319-51097- 2_4. In book: Mechanical and Creep Behavior of Advanced Materials, 2017, pp.43-54.
2. "Graphene-Based Nano-Composite Material for Advanced Nuclear Reactor: A Potential Structural Material for Green Energy", Nisha Verma, Soupitak Pal, Book: Liquid and Crystal Nanomaterials for Water Pollutants Remediation, Page: 206-221, CRC Press.

Technical reports:

1. "Microstructure, texturing, microcracks and delamination behavior of NFA-1" Authors: S. Pal*,

M. E. Alam and G. R. Odette (UCSB), D. Hoelzer (ORNL), S. Maloy (LANL). Fusion Reactor Materials Program, August 31, 2015, DOE/ER-0313/58 – Volume 58, Page 66-82.

2. “Characterization of the microstructure and texture of NFA-1 for the two deformation processing route” Authors: S. Pal, M.E. Alam, G. R. Odette (UCSB), J. Lewandowski (Case Western University) D. T. Hoelzer (ORNL) and S. A. Maloy (LANL). Fusion Reactor Materials Program, December 31, 2015, DOE/ER-0313/58 – Volume 58, Page 29-41.

3. “Characterization of the processing induced impurity phase precipitates in the as-processed FCRD_NFA-1 alloy” Authors: S. Pal, M. E. Alam and G. R. Odette (UCSB), S. Maloy (LANL),

D. T. Hoelzer (ORNL) – Fusion Reactor Materials Program, December 31, 2015, DOE/ER-0313/59 – Volume 59, Page 26-34.

4. “Nanoscale3D correlative atom probe electron tomography: Characterization of microstructure in dual ion irradiated NFA MA957”, P. B. Wells, S. Krämer, Y. Wu, S. Pal, G. R. Odette, and T.

Yamamoto (UCSB)- Fusion Reactor Materials Program, December 31, 2015, DOE/ER-0313/59 – Volume 59, Page 57-62.

5. “Estimates of the through thickness residual stresses in the as-processed NFA-1 plate based on nanoindentation measurements” Authors: S. Pal, M. E. Alam and G. R. Odette (UCSB)– Fusion Reactor Materials Program, August 31, 2016, DOE/ER-0313/60 – Volume 60, Page 35-44.

6. S. Pal, M. E. Alam, G. R. Odette, S. A. Malloy, D.T. Hoelzer, and J.J. Lewandowski “Effect of Deformation Processing on the Microstructure and Texture of the As-Processed NFA-1 Alloy,” DOE/ER-0313/62 (2017).

7. S. Pal, M. E. Alam, G. R. Odette, “Visco-Plastic Self Consistent (VPSC) modeling of the 14YWT Nanostructured Ferritic Alloy” DOE/ER-0313/63 (2017).

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http://web.ornl.gov/sci/physical_sciences_directorate/mst/fusionreactor/semiannual.shtml

Conference Presentation:

1. S Pal, V Jayaram, S K Biswas “Characterization of Phase transformation, Microstructure and Mechanical Properties of Ni-B Coating” presented at NMD-ATM held in Kolkata, 14-17 Nov 2009.

2. S Pal, V Jayaram, S K Biswas “Effect of Heat Treatment on the Phase Transformation and Microstructural Development of Ni-B Coating” presented at RASE in NAL, Bangalore, June 2009.

3. S Pal, N Verma, V Jayaram, S K Biswas and Y Riddle “Phase Transformation, Microstructure and Tribological Behavior of Electroless Ni-B Coating during Heat Treatment” presented at CIMTEC 2010 held in Italy, June 2010.

4. S Pal, V Jayaram, S K Biswas “High-temperature Stability of Ni-B Nano-Composite Coating” presented at NMD-ATM held in Bangalore, 14-17 Nov 2010.

5. S Pal, N Verma, V Jayaram, S K Biswas and Y Riddle “Phase Transformation Behavior and Tribological Properties of Ni-B Coating” presented at TMS-2011, San-Diego, California USA, Feb27-Mar3, 2011.

6. “Characterization of Tribological Properties of Electroless Ni-B coating” presented at conference “Mechanical Behavior at Small Length Scale” Trivandrum, India, September 2011.

7. S Pal, V Jayaram, S K Biswas “Characterization of Phase Transformation Behavior and Microstructural Development of Electroless Ni-B coating” presented at EMSI-2012, Bangalore, India.

8. S. Pal, M. E. Alam, G. R. Odette, S. A. Maloy, D. T. Hoelzer, J.J. Lewandowski “Texturing, Microcracking, and Delamination in 14YWT Nanostructured Ferritic Alloys” – Presented at TMS-2016, Nashville, TN, USA, Feb14-Feb18, 2016.

9. P. Wells, S. Pal, S. Kramer, Y.Wu, G. R. Odette“Characterization of Nuclear Materials with a Combination of Atom Probe and Transmission Electron Tomography” presented at MRS Fall Meeting, November 27 to December 2, 2016, Boston, MA, USA.

10. S. Pal, M. E. Alam, G. R. Odette, S. A. Maloy, D. T. Hoelzer, J.J. Lewandowski “Effect of Different Processing Routes on the Microstructure and texture of 14YWT Nanostructured Ferritic Alloys” Presented at TMS-2011, San-Diego, CA, USA, Feb26-March2, 2017.

11. A. Goswami, S. Pal, T. Thundat, “Effect of Substrate-film Interface in Mid-IR Photothermal Response of PLD Grown MoS2” Presented at TMS-2011, San-Diego, CA, USA, Feb26-March2, 2017

12. “Unique Insights from the Correlated Combination of Atom Probe and Electron Tomography” Presented at TMS-2011, San-Diego, CA, USA, Feb26-March2, 2017.

13. S.Pal, M.E. Alam, G.R. Odette, “Quantitative Characterization of Y/Ti-rich Inclusion in 14Cr- YWTi Nanostructured Ferritic Alloy and Their Effect of High-Temperature Fracture,” TMS 2018 147th Annual Meeting & Exhibition, March 11 – March 15, 2018, Phoenix, AZ.

14. S. Pal, M. E. Alam, G. R. Odette, S. A. Maloy, D. T. Hoelzer, J.J. Lewandowski “Characterization of the Microstructure and Grain Boundary Character of 14YWT Nanostructured Ferritic Alloy Followed by Different Processing Paths,” TMS 2018 147th Annual Meeting & Exhibition, March 11 – March 15, 2018, Phoenix, AZ.

15. S. Pal, P. Wells, G. R. Odette “The Structure and Composition of Mn-Ni-Si Precipitates in an Irradiated High-Ni RPV Steel Following Aging at 425°C for 52 Weeks,” TMS 2018 147th Annual Meeting & Exhibition, March 11 – March 15, 2018, Phoenix, AZ.

16. Nathan Almirall, Shipeng Shu, Peter Wells, Takuya Yamamoto, Dane Morgan, Soupitak Pal, G. R. Odette, “Post Irradiation Annealing Kinetics and Mechanisms in RPV Steels with Nanoscale Mn-Ni-Si Precipitates”, Materials Science & Technology 2018, Columbus OH, USA.

17. S. Pal, M. E. Alam, I. J. Beyerlein, G. R. Odette, S. A. Maloy, D. T. Hoelzer, J.J. Lewandowski “VPSC Modeling of Deformation Processing of 14YWT-Nanostuctured Ferrtic Alloy”- TMS 2019 148th Annual Meeting & Exhibition, March 10 – March 14, 2019, San-Antonio, TX, USA.