

McMaster Steel Research Centre

Student/Post Doc Profile

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Name:	Yunkyum Kim
Department:	Materials Science and Engineering
Supervisor:	Joseph McDermid
Research Topic:	Hot Press Forming
Year Started:	2014
Expected Completion:	2015
Degrees Completed:	PhD Materials Science & Engineering, Korea University, Seoul, Korea, 2014. "Effect of Selective Oxidation on the Wettability of TWIP Steel by Liquid Zn-0.023%Al"
	MASc Materials Science & Engineering, Korea University, Seoul, Korea, 2011 "Wettability of Dual-Phase High Strength Steel by Liquid Zn-0.023%Al"
	B.Sc. Materials Science & Engineering, Korea University, Seoul, Korea, 2009

Research Interests:

Selective Oxidation and Galvanizing of Advanced High Strength Steel

- High temperature selective oxidation of advanced high strength steel
- Dynamic reactive wetting of Zn-based alloys on advanced high strength steel
- Hot-dip galvanizing of advanced high strength steel
- Thermodynamic calculation of phase stability of surface oxides under controlled oxygen potential

Thermophysical Properties of Alloys

- Measurement of surface tension and density of alloys at high temperature
- Calculation of surface tension and density of alloys
- Analysis of oxygen adsorption on the surface of alloys

Publications:

1. Y. Kim, J. Lee, K. S. Shin, S.H. Jeon, K. G. Chin, " The Influence of Dew Point on the Wettability of Twinning-Induced Plasticity Steels by Liquid Zn-0.23wt%Al", Corrosion Science (2014) 85:361-71
2. M. Abbasi, M. Shin, Y. Kim, J. Lee, Y. Kang " Effect of Oxygen Adsorption on Surface Tension of Liquid Copper: Experiments and Thermodynamic Model", Applied Surface Science (2014) 313:116-122-71
3. Y. Kim, J. Lim, J. Choe, J. Lee, " Surface Tension of Liquid Fe-O Alloys: Revisiting Belton's Two Step Adsorption Model", Metallurgical and Materials Transactions B (2014) 45(3):947-952
4. Y. Kim, J. Lee, K. S. Shin, S.H. Jeon, K. G. Chin, " Effect of Dew Point on the Formation of Surface Oxides of Twinning-Induced Plasticity Steel", Materials Characterization (2014) 89: 138-145
5. Y. Kim, J. Lee, S.H. Jeon, K. G. Chin, "The Influence of Mn Content on the Wettability of Dual Phase High-Strength Steels by Liquid Zn-0.23%Al", Journal of Materials Science (2012) 47(24): 8477-8482
6. D. Jang, Y. Kim, M. Shin, J. Lee, " Kinetics of Carbon Dissolution of Coke in Molten Iron", Metallurgical and Materials Transactions B (2012) 43(6): 1308-1314
7. Y. Kim, J. Lee, J. Park, S. H. Jeon, " Effect of Si Content on Wettability of Dual Phase High Strength Steels by Liquid Zn-0.23 wt.%Al", Metals and Materials International (2011) 17(4): 607-611
8. Y. Kim, M. Shin, C. Tang, J. Lee, " Wettability of $Mn_xSi_yO_z$ by Liquid Zn-Al Alloys", Metallurgical and Materials Transactions B (2010) 41 (4): 872-875
9. T. T. Bao, Y. Kim, J. Lee, J. G. Lee, " Preparation and Thermal Analysis of Sn-Ag Nano Solders", Materials Transactions (2010) 51 (12): 2145-2149
10. J. Lee, J. Park, Y. Kim, S.H. Jeon, " Improvement of the Wettability of SiMn IF-HSS by Liquid Zinc by Controlling the Dew Point of the Annealing Gas Atmosphere", Journal of Materials Science (2010) 45(8): 2112-2117
11. T. Kim, J. Lee, Y. Kim, J. M. Kim, Z. Yuan, "Investigation of the Dynamic Reactive Wetting of SnAg-Cu Solder Alloys on Ni(P)/Au Coated Cu Substrates", Materials Transactions (2009) 50(11): 2695-2698