Associate Professor Dr. Jessada Wannasin

1. Academic Position Associate Professor
Prince of Songkla University

2. Education and Work Experience

Education

Year	Major	Major	Institution	Country
2547	Ph.D.	Materials Science and Engineering	Massachusetts Institute of Technology	U.S.A.
2543	B.S.E.	Materials Science and Engineering	Case Western Reserve University	U.S.A

Work Experience

Year	Position	Institution	Country
2548	Postdoctoral Research Associate	Case Western Reserve University	U.S.A

3. Fields of Expertise : Slurry Metal Casting; Semi-Solid Metal Casting; Metal Casting Technology

4. Selected Awards

1. Outstanding Technologist Award 2014 of Thailand
2. Young Technologist Award 2009 of Thailand
3. Young Outstanding Metallurgist Award 2007 of Thailand
4. Young Exemplary Lecturer 2010 of Prince of Songkla University
5. Outstanding Researcher 2007 of the Faculty of Engineering, Prince of Songkla University
6. Outstanding Research Project 2007 of Prince of Songkla University
7. A Royal Thai Scholar **:** Awarded a full scholarship from the Thai government to study materials science and engineering in the USA, supported from high school to Ph.D., 1995-2005.

5. Selected Inventions

1. “Process for Preparing Molten Metals for Casting at a Low to Zero Superheat Temperature.” International Publication Number: PCT/TH2014/000025; Inventors: Wannasin, Jessada; Flemings, Merton C.
2. “Method to Prepare Metal Structure Suitable for Semi-Solid Metal Processing.” International Publication Number: PCT/US2007/002503; Inventors: Wannasin, Jessada; Martinez, Raul A.; Flemings, Merton C.

3. US Patent No. 6,935,406. “High Pressure Centrifugal Infiltration of Composite.” Issued on August 30, 2005.

6. Research Projects and Publications

6.1 Selected Research Projects

Project Title	Sponsor
1. A Feasibility Study of Adding Filler Material in Molten Zinc	Mattel, Inc. (USA)
2. Production of Die-Cast Cars with Zinc Composites	Mattel, Inc. (USA)
3. Development of a Zinc Composite Feeding System	Mattel, Inc. (USA)
4. Development of a Novel Semi-Solid Metal Processing in Die Casting	Reverse Brain Drain Project (NSTDA)
5. Evolution of Solid Fraction in Semi-Solid Slurries of Rheocast Al-Si-Cu Alloy	The Thai Research Fund
6. Development of a High-Pressure Centrifugal Infiltration Machine for Fabrication of Aluminum Metal Matrix Composites	Faculty of Engineering, Prince of Songkla University
7. Fabrication of Aluminium Matrix Composites Reinforced with Silicon Carbide Synthesized from Rubberwood by Pressure Infiltration Process	National Research Council of Thailand
8. Semi Solid Metal Casting of Aluminum Die Casting Alloy	Royal Golden Jubilee
9. Formation Mechanism of a Semi-Solid Metal Process	Royal Golden Jubilee
10. Fundamental Study of Semi-Solid Metal Processing	Royal Golden Jubilee
11. Production of Tin-Antimony Lapping Plates by a Semi-Solid Casting Process	NSTDA & Western Digital (Thailand) Co., Ltd.
12. Analysis of the Engineering Properties of Lap Plates	Western Digital (Thailand) Co., Ltd.
13. Early Stages of Globular Grain Formation in a Rheocasting Process	The Thai Research Fund
14. Analysis of the Engineering Properties of Lap Plates	Western Digital (Thailand) Co., Ltd.
15. Fabrication of Aluminum Matrix Composites by a New Infiltration Process	MTEC Platform Technology
16. Fabrication of Aluminum Anodes by a Semi-Solid Metal Process	MTEC Platform Technology
17. Development of the Production Process of Prosthetic Metal Parts by Semi-Solid Metal Technology	National Research Council of Thailand
18. Development of High-Quality and Low-Cost Below Knee Prosthesis	National Research Council of Thailand
19. Property Analysis of Tin Bismuth Plates	NSTDA & Western Digital (Thailand) Co., Ltd.
20. Production of Field Prototype Tin-Antimony Lapping Plates by a Semi-Solid Casting Process	NSTDA & Western Digital (Thailand) Co., Ltd.
21. Analysis of Zinc Quality and Defects in the Mating Die Casting Processes	Mattel, Inc. (USA)
22. Production of Zinc Car Parts using the GISS Die Casting Process	Mattel, Inc. (USA)
23. Production of Industrial Tin-Antimony Lapping Plates by a Semi-Solid Casting Process	Western Digital (Thailand) Co., Ltd.
24. High-Pressure Semi-Solid Forming of Non-Ferrous Alloys	National Research University
25. Low-Pressure Semi-Solid Forming of Non-Ferrous Alloys	National Research University
26. Final Lapping Process Characterizations	Western Digital (Thailand) Co., Ltd.

6.2 Selected Journal Publications

1. **Wannasin J**, Canyook R, Wisutmethangoon S, Flemings MC. "Grain refinement behavior of an aluminum alloy by inoculation and dynamic nucleation." Acta Materialia 2013;61:3897-3903 [ISI Journal Impact Factor =3.941].
2. Canyook R, **Wannasin J**, Wisuthmethangkul S, Flemings MC. Characterization of the microstructure evolution of a semi-solid metal slurry during the early stages. Acta Materialia, 2012, 60; 3501-3510 [ISI Journal Impact Factor =3.941].
3. Janudom S, **Wannasin J**, Basem J, Wisutmethangoon S. "Characterization of flow behavior of semi-solid slurries containing low solid fractions in high-pressure die casting." Acta Materialia 2013;61: 6267-6275 [ISI Journal Impact Factor =3.941].
4. Chucheep T, **Wannasin J**, Canyook R, Rattanochaikul T, Janudom S, Wisutmethangoon S, Flemings MC. "Characterization of Flow Behavior of Semi-Solid Slurries with Low Solid Fractions." Metallurgical and Materials Transactions A 2013;44:4754-4763 [ISI Journal Impact Factor =1.627].
5. **Wannasin J**. "Applications of Semi-Solid Slurry Casting Using the Gas Induced Semi-Solid Technique." Solid State Phenomena 2013;192-193:28-35.
6. Janudom S, **Wannasin J**, Kapranos P, and Wisutmethangoon S. "The Effect of Hot Tearing in Semi Solid Casting of Aluminum A201 Alloy." Advanced Materials Research 2013;739:190-195.
7. **Wannasin J** and Flemings MC. "Metal Matrix Composites: Infiltration." Encyclopedia of Composites, 2nd Edition, Editors: Luigi Nicolais Assunta Borzacchiello, publisher John Wiley &Sons, Hoboken, New Jersey, 2012.
8. Wisutmethangoon S, Thongjan S, Mahathaninwong N, Plookphol T, **Wannasin J**. Precipitation hardening of A356 Al alloy produced by gas induced semi-solid process. Mater Sci Eng A, 2012, 532; 610-615 [ISI Journal Impact Factor =2.101].
9. Mahathaninwong N, Plookphol T, **Wannasin J**, Wisutmethangoon S. T6 heat treatment of rheocasting 7075 Al alloy. Mater Sci Eng A, 2012, 532; 91-99 [ISI Journal Impact Factor =2.101].
10. Kovac, P., Sidjanin, L., Rajnovic, D., Savkovic, B., **Wannasin, J**. "The microstructure influence on the chip formation process of Al-Cu alloy cast conventionally and in semi-solid state." Metalurgija, Volume 51, Issue 1 (2011), Pages 34-38 [ISI Journal Impact Factor =0.35].
11. **Wannasin J**, Janudom S, Rattanochaikul T, Canyook R, Burapa R, Chucheep T, Thanabumrungkul S. "Research and development of gas induced semi-solid process for industrial applications." Transactions of Nonferrous Metals Society of China, 20 (2010), Pages s1010-s1015 [ISI Journal Impact Factor =0.68].
12. Rattanochaikul T, Janudom S, Memongkol N, and **Wannasin J**. "Development of an aluminum semi-solid extrusion process." Journal of Metals, Materials and Minerals, Vol. 20, No. 2 (2010), Pages 17-21.

13. Canyook R, Petsut S, Wisutmethangoon S, Flemings MC, **Wannasin J**. “Evolution of microstructure in semi-solid slurries of rheocast aluminum alloy.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages 1649-1655 [ISI Journal Impact Factor =0.68].
14. Rattanochaikul T, Janudom S, Memongkol N, **Wannasin J**. “Development of aluminum rheo-extrusion process using semi-solid slurry at low solid fraction.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages 1763-1768 [ISI Journal Impact Factor =0.68].
15. Chucheep T, Burapa R, Janudom S, Wisuthmethangoon S, **Wannasin J**. “Semi-solid gravity sand casting using gas induced semi-solid process.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages s981-s987 [ISI Journal Impact Factor =0.68].
16. Burapa R, Janudom S, Chucheep T, Canyook R, **Wannasin J**. “Effects of primary phase morphology on mechanical properties of Al-Si-Mg-Fe alloy in semi-solid slurry casting process.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages s857-s861 [ISI Journal Impact Factor =0.68].
17. Janudom S, Rattanochaikul T, Burapa R, Wisutmethangoon S, **Wannasin J**. “Feasibility of semi-solid die casting of ADC12 aluminum alloy.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages 1756-1762 [ISI Journal Impact Factor =0.68].
18. Thanabumrungkul S, Janudom S, Burapa R, Dulyapraphant P, **Wannasin J**. “Industrial development of gas induced semi-solid process.” Transactions of Nonferrous Metals Society of China, 20 (2010), Pages s1016-s1021 [ISI Journal Impact Factor =0.68].
19. **Wannasin J**, Canyook R, Burapa R, Sikong L, Flemings MC. “Evaluation of Solid Fraction in a Rheocast Aluminum Die Casting Alloy by a Rapid Quenching Method.” Scripta Materialia, 59 (2008), Pages 1091-1094 [ISI Journal Impact Factor =2.81].
20. **Wannasin J**, Junudom S, Rattanochaikul T, Flemings MC. “Development of the Gas Induced Semi-Solid Metal Process for Aluminum Die Casting Applications.” Solid State Phenomena. 141-143 (2008) Pages 97-102.
21. **Wannasin J**, Thanabumrungkul S. “Development of a semi-solid metal processing technique for aluminium casting applications.” Songklanakarin J. Sci. Technol. Volume 30, Issue 2 (2008), Pages 215-220.
22. Niyomwas S, Chaichana N, Memongkol N, **Wannasin J**. “The effects of milling time on the synthesis of titanium diboride powder by self-propagating high temperature synthesis.” Songklanakarin J. Sci. Technol. Volume 30, Issue 2 (2008), Pages 233-238.
23. **Wannasin J**, Schwam D, and Wallace JF, “Evaluation of Methods for Metal Cleanliness Assessment in Die Casting,” Journal of Materials Processing Technology, Volume 191, Issue 1-3, August 2007, Pages 242-246 [ISI Journal Impact Factor =1.57].
24. **Wannasin J**, Schwam D, Yurko JA, Rohloff C, and Woycik GG, “Hot Tearing Susceptibility and Fluidity of Semi-Solid Cast Al-Cu Alloy,” Solid State Phenomena, Vol.116, October 2006, Pages 76-79.

25. **Wannasin J**, Martinez RA, and Flemings MC, “A Novel Technique to Produce Metal Slurries for Semi-Solid Metal Processing,” Solid State Phenomena, Vol.116, October 2006, Pages 366-369.
26. **Wannasin J**, Martinez RA, Flemings MC, “Grain Refinement of an Aluminum Alloy by Introducing Gas Bubbles during Solidification,” Scripta Materialia, Volume 55, Issue 2, July 2006, Pages 115-118 [ISI Journal Impact Factor =2.81].
27. **Wannasin J** and Flemings MC, “Fabrication of Metal Matrix Composites by a High-Pressure Centrifugal Infiltration Process,” Journal of Materials Processing Technology, Volume 169, Issue 2, November 2005, Pages 143-149 [ISI Journal Impact Factor =1.57].
28. **Wannasin J** and Flemings MC, “Threshold Pressure for Infiltration of Ceramic Compacts Containing Fine Powders,” Scripta Materialia, Volume 53, Issue 6, September 2005, Pages 657-661 [ISI Journal Impact Factor =2.81].