

Associate Professor Dr. Yuttanant Boonyongmaneerat

Metallurgy and Materials Science Research Institute (MMRI),
Chulalongkorn University, Soi Chula 12, Payathai Rd.,
Pathumwan, Bangkok, Thailand 10330
Phone +662-218-4243 Email: yuttanant.b@chula.ac.th



EDUCATION

- 1998-2002 B.Sc. in Materials Science and Engineering, *magna cum laude* and with Honors, Brown University (Providence, Rhode Island).
- 2002-2006 Ph.D. in Materials Science and Engineering, Massachusetts Institute of Technology (MIT; Cambridge, Massachusetts).
- 2006-2007 Postdoctoral Research Fellow, Department of Materials Science and Engineering, Northwestern University (Evanston, Illinois).

WORK EXPERIENCE

- **Deputy Director**, Metallurgy and Materials Science Research Institute, Chulalongkorn University.
- **Head of Surface Coating Technology for Metals and Materials Research Center**, Metallurgy and Materials Science Research Institute, Chulalongkorn University.
- **Committee member**, Technopreneurship and Innovation Management Program (CUTIP), Chulalongkorn University
- **Chairman**, Thailand Electroplating Professional Network (TEPNET)

RESEARCH EXPERTISE

- Surface Finishing Technology
- Metal Foam Technology
- Sustainable Developments
- Corrosion Engineering

HONORS AND AWARDS

- 2017 Thai Scholar Rising Start Award – The Association of the Thai Government Scholarship Students
- 2015 The Young Technologist Award – Foundation for the Promotion of Science and Technology under the Patronage of H.M. the King
- 2014 Posco-Thainox Metallurgy Award
- 2014 Innovator Under 35 Award, TR-35 Singapore – MIT Technology Review
- 2012 Posco-Thainox Metallurgy Award
- 2011 The Young Scientist Award – Foundation for the Promotion of Science and

	Technology under the Patronage of H.M. the King
2009	Young Outstanding Metallurgist – 3 rd Thailand Metallurgy Conference
2002	Ronald A. Kurtz Graduate Fellowship, Massachusetts Institute of Technology
2002	Outstanding Materials Engineering Senior Award, Brown University
2002	Magna Cum-Laude Honor
2002	Sigma Xi Honor Society Induction
2000	Tau Beta Pi Honor Society Induction
1997	The Royal Thai Government Scholarship

INTERNATIONAL PUBLICATIONS

1. Z.F. Wang, Y. Boonyongmaneerat, K.S. Kumar, and C.L. Briant, “Hydride Formation in Grade 2 Titanium Exposed to Sea Water for Extended Times,” *Corrosion/2001, NACE*, p. 11, 2001.
2. Y. Boonyongmaneerat and C.A. Schuh, T.W. Eagar, “Strategies for Bonding W and Al₂O₃ at Low Temperatures,” *Advances in Ceramic Coatings and Ceramic-Metal Systems, CESP*, vol. 26, 3, pp. 399-406, 2005
3. Y. Boonyongmaneerat and C.A. Schuh, “Contributions to the Interfacial Adhesion in Co-Sintered Bilayers,” *Metallurgical and Materials Transactions A*, vol. 37A, pp. 1435-42, 2006.
4. A. Martinez, D. Blankenship, Y. Boonyongmaneerat, and C.A. Schuh, “Improvement of a Tungsten Facecoat for Titanium Casting”, *Proceedings of the 54th Annual Technical Conference on Investment Casting*, Investment Casting Institute, 2006.
5. Y. Boonyongmaneerat, “Mechanical Properties of Partially-Sintered Materials,” *Materials Science and Engineering A*, vol. 452-453, pp. 773-780, 2007.
6. J.M. LeBeau and Y. Boonyongmaneerat, “Comparison Study of Aqueous Binder Systems for Slurry-Based Processing,” *Materials Science and Engineering A*, vol. 458, pp. 17-24, 2007.
7. Y. Boonyongmaneerat, M. Chmielus, D.C. Dunand, and P. Müllner, “Increasing magnetoplasticity in polycrystalline Ni-Mn-Ga by reducing internal constraints through porosity,” *Physical Review Letters*, 99, 247201, 2007.
8. Y. Boonyongmaneerat and D.C. Dunand, “Ni-Mo-Cr Foams Processed by Casting Replication of Sodium Aluminate Preforms,” *Advanced Engineering Materials*, Vol. 10, No. 4, pp. 379-383, 2008.
9. Y. Boonyongmaneerat, C.A. Schuh, and D.C. Dunand, “Mechanical Properties of Reticulated Aluminum Foams with Electrodeposited Ni-W Coatings,” *Scripta Materialia*, Vol. 59, Issue 3, pp. 336-339, 2008.
10. Y. Boonyongmaneerat, “Effects of Low-Content Activators on Low-Temperature Sintering of Tungsten,” *Journal of Materials Processing Technology*, 209 (8), pp. 4084-4087, 2009.

11. Y. Boonyongmaneerat and D.C. Dunand, "Effects of Strut Geometry and Pore Fraction on Creep Properties of Cellular Materials," *Acta Materialia*, Vol.57, pp.1379-1384, 2009.
12. S. Asavavisithchai, E. Nisaratanaporn, and Y. Boonyongmaneerat, "A novel method to produce silver foams with multi-level porosities," *Chiang Mai Journal of Science*, 36(3), pp.296-301, 2009.
13. Y. Boonyongmaneerat, K. Saengkiattiyut, S. Saenapitak, and S. Sangsuk, "Effects of WC addition on structure and hardness of electrodeposited Ni-W," *Surface & Coatings Technology*, vol. 203, pp. 3590-4, 2009.
14. Y. Boonyongmaneerat, S. Saenapitak, and K. Saengkiattiyut, "Reverse pulse electrodeposition of Zn-Ni alloys from a chloride bath," *Journal of Alloys and Compounds*, vol. 487, pp. 479-482, 2009.
15. Y. Boonyongmaneerat, K. Saengkiattiyut, P. Rattanawaleedirojn, C. Angkaprasert, J. Wanichsampan, S. Saenapitak, "Effect of NiCl₂-based fluxes on interfacial layer formation of hot dip galvanized steels," *Journal of Iron and Steel Research, International*, 17(8), pp. 74-78, 2010.
16. P. Mullner, X. Zhang, Y. Boonyongmaneerat, C. Witherspoon, M. Chmielus, D.C. Dunand, "Recent developments in Ni-Mn-Ga foam research," *Materials Science Forum*, Vol. 635, pp. 119-124, 2010.
17. Y. Boonyongmaneerat, K. Saengkiattiyut, S. Saenapitak, S. Sangsuk, "Pulse co-electrodeposition and characterization of NiW-WC composite Coatings," *Journal of Alloys and Coatings*, 506, pp.151-154, 2010.
18. R. Sa-nguanmoo, E. Nisarattanaporn, Y. Boonyongmaneerat, "Hot-dip galvanization with pulse-electrodeposited nickel pre-coatings," *Corrosion Science*, 53, pp. 122-126, 2011.
19. S. Sukkasi, U. Sahapatsombut, C. Sukjamsri, S. Saenapitak, Y. Boonyongmaneerat, "Electroless Ni-based coatings for biodiesel containers," *Journal of Coatings Technology and Research*, Vol. 8 (1), pp. 141-147, 2011.
20. Y. Boonyongmaneerat, U. Sahapatsombut, C. Sukjamsri, S. Saenapitak, S. Sukkasi, "Investigation of Electrodeposited Ni-based Coatings for Biodiesel Storage," *Applied Energy*, 88, pp. 909-913, 2011.
21. A. Issariyapat, P. Swangsak, Y. Boonyongmaneerat, P. Visuttipitukul, "Effects of Heat Treatment on the Interfacial Structure of Nickel-Aluminum Coating Composites," *Advanced Materials Research*, Vol. 154-155, pp. 1462-1467, 2011.
22. A. Chianpairot, G. Lothongkum, C.A. Schuh, and Y. Boonyongmaneerat, "Corrosion of nanocrystalline Ni-W alloys in alkaline and acidic 3.5 wt.% NaCl solutions," *Corrosion Science*, 53, pp. 1066-1071, 2011.
23. N. Sunwang, P. Wangyao, Y. Boonyongmaneerat, "The Effects of heat treatments on hardness and wear Resistance in Ni-W alloy coatings," *Surface and Coating Technology*, 206(6), pp. 1096-1101, 2011.

24. S. Akamphon, S. Sukkasi, Y. Boonyongmaneerat, "Reduction of zinc consumption with enhanced corrosion protection in hot-dip galvanized coatings: A process-based cost analysis," *Resources, Conservation and Recycling*, 58, pp.1-7, 2012.
25. S. Ploypech, Y. Boonyongmaneerat, P. Jearanaisilawong, "Crack initiation and propagation of galvanized coatings hot-dipped at 450°C under bending loads," *Surface and Coatings Technology*, 206(18), pp. 3758-3763, 2012.
26. A. Changvittaya, Y. Boonyongmaneerat, P. Anuntvoranich, "Value creation through design: Goal and constraint – Case study Thailand's furniture industry, *International Journal of the Computer, the Internet, and Management*, 19 (2) pp. 10-15, 2011.
27. E. Wichianrat, Y. Boonyongmaneerat, S. Asavavisithchai, "Microstructural examination and mechanical properties of replicated aluminium composite foams," *Transactions of Nonferrous Metals Society of China*, 22(7), pp. 1674-1679, 2012.
28. E. Wichianrat, Y. Boonyongmaneerat, S. Asavavisithchai, "A comparative study of replicated pure Al and AC3A composite foams," *Procedia Engineering*, 32, pp. 621-627, 2012.
29. Y. Boonyongmaneerat, P. Jearanaisilawong, S. Ploypech, "Crack initiation and propagation of galvanized coatings under bending loads," *AISTech*, pp. 1839-1845, 2012.
30. S. Srikomol, Y. Boonyongmaneerat, R. Techapiesancharoenkij, "Electrochemical codeposition and heat treatment of nickel-titanium alloy layers," *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, 44(1), pp. 53-62, 2013.
31. N. Chuankrerkkul, Y. Boonyongmaneerat, k. Saengkiattiyut, P. Rattanawaleedirojn, S. Saenapitak, "Injection moulding of tungsten carbide-nickel powders prepared by electroless deposition," *Key Engineering Materials*, 5454, pp.148-152, 2013.
32. S. Ploypech, P. Jearanaisilawong, Y. Boonyongmaneerat, "Influence of thickness of intermetallic layers on fracture resistance of galvanized coatings," *Surface and Coatings Technology*, 223, pp.1-5, 2013.
33. R. Techapiesancharoenkij, P. Janetaisong, Y. Boonyongmaneerat, A. Laobuthee, "Electrochemical codeposition of Ti-dispersed Ni-matrix layers by pulse-form current," *PRICM* 8, 3, pp. 1909-1916, 2013.
34. P. Janetaisong, R. Techapiesancharoenkij, Y. Boonyongmaneerat, "Microstructural and corrosion characterizations of nickel-titanium coatings produced by electrochemical codeposition and heat treatment," *PRICM* 8, 3, pp. 2075-2082, 2013.
35. K. Theeratpong, S. Danchaivijit, Y. Boonyongmaneerat, "Effects of Co content and heat treatment on mechanical properties of electrolessly deposited Ni-Co-P alloys," *Surface and Interface Analysis*, 46, 4, pp. 276-282, 2014.
36. Y. Boonyongmaneerat, K. Saengkiattiyut, S. Saenapitak, S. Sangsuk, "Corrosion behavior of reverse-pulse electrodeposited Zn-Ni alloys in saline environment," *Journal of Materials Engineering and Performance*, 23, 1, pp. 302-307, 2014.

37. C. Somphotch, E. Nisarattanaporn, Y. Boonyongmaneerat, "Influence of bath formulations on low-temperature electroless deposition of Ni-P alloys," *Chiang Mai Journal of Science*, 41(5.2), pp. 1332-1340, 2014.
38. W. Janphongsri, Y. Boonyongmaneerat, P. Jearanaisilawong, "Compressive response of polyurethane open-cell foam with electrodeposited copper coatings," *Advanced Materials Research*, 931-932, pp. 381-385, 2014.
39. J. Sittikun, Y. Boonyongmaneerat, P. Weerachawanasak, P. Prasertthdam, J. Panpranot, "Pd/TiO₂ catalysts prepared by electroless deposition with and without SnCo₂ sensitization for the liquid-phase hydrogenation of 3-hexyn-1-ol," *Reaction Kinetics, Mechanisms and Catalysis*, 111, 1, pp. 123-135, 2014.
40. S. Riyapan, Y. Boonyongmaneerat, O. Mekasuwandumrong, H. Yoshida, S.-I. Fujita, M. Arai, J. Panpranot, "Improved catalytic performance of Pd/TiO₂ in the selective hydrogenation of acetylene by using H₂-treated sol-gel TiO₂," *Journal of Molecular Catalysis A: Chemical*, 383-384, pp. 182-187, 2014.
41. L. Kanapa, Y. Boonyongmaneerat, M. Supradist, "Finite difference kinetics modeling for galvanized steels with post heat treatments," *Advanced Materials Research*, 1025-1026, pp. 723-730, 2014.
42. T. Chotibhawaris, T. Luangvaranunt, P. Jantaratana, Y. Boonyongmaneerat, "Influence of the electrodeposited Co-Fe alloys' characteristics on their magnetic properties," *Advanced Materials Research*, 1025-1026, pp. 709-716, 2014.
43. N. Udompanit, P. Wangyao, S. Henpraserttae, Y. Boonyongmaneerat, "Wear response of composition-modulated multilayer Ni-W coatings," *Advanced Materials Research*, 1025-1026, pp. 302-309, 2014.
44. T. Lertjirakul, Y. Boonyongmaneerat, P. Visuttipitukul, "Effect of Cr plating and plasma nitriding on hardness and corrosion resistance of H13 steel," *Advanced Materials Research*, 1025-1026, pp. 737-744, 2014.
45. P. Rattanawaleedirogn, K. Saengkiettiyut, Y. Boonyongmaneerat, N. Chuankrerkkul, S. Saenapitak, "Effects of complexing agent concentration and bath pH on electroless nickel deposition for tungsten carbide powders," *Advanced Materials Research*, 970, pp. 240-243, 2014.
46. J. Qin, X. Zhang, Y. Xue, M.K. Das, A. Thueploy, S. Limpanart, Y. Boonyongmaneerat, M. Ma, R. Liu, "The high concentration and uniform distribution of diamond particles in Ni-diamond composite coatings by sediment co-deposition," *Surface and Interface Analysis*, 47(3), pp. 331-339, 2015.
47. S. Riyapan, Y. Boonyongmaneerat, O. Mekasuwandumrong, P. Prasertthdam, J. Panpranot, "Effect of surface Ti³⁺ on the sol-gel derived TiO₂ in the selective acetylene hydrogenation on Pd/TiO₂ catalysts," *Catalysis Today*, 245, pp.134-138, 2015.

PATENTS

1. Y. Boonyongmaneerat, T.W. Eagar, and C.A. Schuh, “Transient Migrating Phase Low Temperature Joining of Co-Sintered Particulate Materials Including a Chemical Reaction,” Provisional patent, U.S.S.N 60/646,808, 25 Jan. 2005.
2. P. Müllner, D.C. Dunand, Y. Boonyongmaneerat, and M. Chmielus, “Magnetic shape-memory foams with large magnetically-induced deformation” Patent No.: US 7,964,290 B2, 21 Jun., 2011.
3. Y. Boonyongmaneerat, K. Saengkiattiyut, P. Rattanawaleedirojn, S. Saenapitak, and Run Sanguanmoo, “Hot-dip galvanized steels with high corrosion resistant zinc-nickel layer and processing method thereof” Thai patent pending, filed Feb. 2010 (1001000114).
4. P. Rattanawaleedirojn, K. Saengkiattiyut, S. Saenapitak, Y. Boonyongmaneerat, “Chemical Inhibiting Corrosion in Metals” Thai petty patent, #1003000720, 9 Aug. 2010.
5. P. Müllner, M. Chmielus, C. Witherspoon, D.C. Dunand, X.X. Zhang, and Y. Boonyongmaneerat, “Polycrystalline Foams Exhibiting Giant Magnetic-Field-Induced Deformation and Methods of Making and Using Same” US 8586194, 19 Nov. 2013