

陳信文 *Sinn-wen Chen*

陳信文博士為國立清華大學化學工程學系特聘教授兼清華大學全球事務長。陳教授為 University of Wisconsin-Madison 材料博士，畢業後短暫在 Alcoa 任職，隨即於 1992 年回到清大任教迄今。陳教授曾任清大化工系主任、學務長、教務長以及國科會化學門召集人等職，亦曾受邀於法國南特大學、美國 Lehigh University、與 University of Wisconsin-Madison 擔任客座教授。陳教授研究專長在相圖之量測、計算與應用，所探討的材料包括鋁合金、電子鋸料與熱電材料。為美國金屬學會(ASM)會士、中國材料科學學會(MRS-Taiwan)會士、與亞太材料學院院士 (APAM Academician)。

現職及與相關經歷

現職：			
服務機關	服務部門/系所	職稱	起訖年月
國立清華大學	化學工程學系	教授(特聘教授)	1997(2007)/8 迄今
	全球事務處	全球事務長	2014/2~迄今
Journal of Phase Equilibria and Diffusion		Editorial committee member	2009/1~now
Journal of Electronic Materials		Associate editor	2006/8 ~now
中國材料學會		(常務)理事	2009/12~迄今
GRE	Asia Advisory Council	Member (Chair)	2012(13)-present
TMS	Alloy Phase Committee	Chairperson	2014/3~ now
ASM	Alloy Phase Diagram Committee	Member	2006/8 迄今
經歷：			
國立清華大學	教務處	教務長	2010/8~2014/1
國立清華大學	學務處	學務長	2008/8~2010/7
國立清華大學	學務處	副學務長	2008/1~2008/7
國立清華大學	化學工程學系	系主任	2004/8~ 2007/7
國立清華大學	化學工程學系	副教授	1992/2~ 1997/7
Alcoa Research Center	Molten Metal Processing Division	Senior Scientist	1991/4~ 1992/1
University of Wisconsin-Madison	Materials Science and Engineering Department	Research Associate	1990/8~ 1991/3
University of Wisconsin-Madison	Materials Science and Engineering Department	Visiting Professor	2007/8~2007/12
Ecole Polytechnique de l'universite de Nantes	Laboratoire Genie des materiaux	Invited Professor	2002/6~ 2002/7
Lehigh University	Materials Science and Engineering Department	Visiting Scholar	2000/6~ 2000/8
Progress in Natural Science: Materials International		Editorial board member	2011/1~2014/12
台灣化學工程學會	國際關係委員會	主任委員	2011/2~2011/12
中國化學工程學會	會刊及叢書委員會	主任委員、總編輯	2003/2~ 2005/2
國科會	工程處化學門	學門召集人	2002/12~2005/12

專長

1. 材料熱力學與相平衡	2. 微電子鋸料	3. 熱電材料	4. 金屬與陶瓷相變化
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研究成果目錄:

Refereed Paper (具審查制度期刊)

2015

1. W.-T. Chiu, ***S.-W. Chen** and S.-M. Tseng, 2015, "Liquidus projection of Cu-In-Se photovoltaic material system", submitted to a refereed journal for publication. (NSC97-2221-E-007-067-MY3).
2. ***S.-W. Chen**, J.-S. Chang, C.-M. Hsu, J.-Y. Lin, and C.-H. Wang, "Interfacial reactions in In/Ag₂Se couples", submitted to a refereed journal for publication. (NSC97-2221-E-007-067-MY3).
3. Y. Tang, **S.-W. Chen** and *G. J. Snyder, "Approaching the optimum carrier concentration for thermoelectric performance of Yb-doped CoSb₃ based skutterudites by phase diagram study", submitted to a refereed journal for publication. (NSC100-2221-E-155-019, NSC101-3113-P-008-001).
4. H.-J. Wu, T.-W. Lan, ***S.-W. Chen**, Y.-Y. Chen, T. Day and G. J. Snyder, 2015, "State of the art Ag_{50-x}Sb_xSe_{50-y}Te_y alloys: their high zT values, microstructures and related phase equilibria", *Acta Materialia*, Vol. 93, pp. 38–45 (NSC97-2221-E-007-067-MY3).
5. S. Bajaj, G. S. Pomrehn, J. W. Doak, W. Gierlotka, H.-J. Wu, **S.-W. Chen**, C. Wolverton, W. A. Goddard III, and *G. J. Snyder, 2015, "Ab initio study of intrinsic point defects in PbTe: an insight into phase stability", *Acta Materialia*, Vol. 92, pp. 72–80.
6. ***S.-W. Chen**, Y.-C. Chien, W.-A. Chen, J.-S. Chang and G. Snyder, 2015, "Liquidus projection and phase equilibria isothermal section of ternary Co-Sb-Ga system", *Journal of Alloys and Compounds*, Vol. 637, pp. 98-105. (NSC101-3113-P-008-001).
7. Y. Tang, **S.-W. Chen**, G. J. *Snyder, 2015, "Temperature Dependent Solubility of Yb in Yb-CoSb₃ Skutterudite and its Effect on Preparation, Optimization and Lifetime of Thermoelectrics", *Journal of Materiomics*, Vol. 1, pp. 75-84. (NSC101-3113-P-008-001)
8. J.-S. Chang and ***S.-W. Chen**, "Liquidus projection and isothermal section of the Ag-In-Zn ternary system", *Journal of Electronic Materials*, Vol. 44(4), pp. 1134-1143. (NSC101-3113-P-008-001).
9. S.-K. Lin, R.-B. Chang, ***S.-W. Chen**, M.-Y. Tsai, and C.-M. Hsu, 2015, "Solid-state reactions between Sn-20.0 wt.%In-x wt.%Zn solders and Ag and Ni substrates", *Materials Chemistry and Physics*, Vol. 154, pp. 60-65. (NSC97-2221-E-007-067-MY3).
10. W. Gierlotka, ***S.-W. Chen**, W.-A. Chen, J.-S. Chang, G. J. Snyder and Y. Tang, 2015, "The Co-Sb-Ga system: isoplethal section and thermodynamic modeling", *Metallurgical and Materials Transactions A*, Vol. 46A, pp.1488-1499. (NSC101-3113-P-008-001 and NSC102-2221-E-259 -034)
11. W.-A. Chen, ***S.-W. Chen**, S.-M. Tseng, H.-W. Hsiao, Y.-Y. Chen, G. J. Snyder and Y. Tang, 2015, "Interfacial reactions in Ni/CoSb₃ couples at 450°C", *Journal of Alloys and Compounds*, Vol. 632, pp. 500-504. (NSC102-3113-P-008-001)

2014

12. ***S.-W. Chen**, C.-Y. Wu, H.-J. Wu, and W.-T. Chiu, 2014, "Interfacial reactions in Sn/Bi₂Te₃, Sn/Bi₂Se₃ and Sn/Bi₂(Te_{1-x}Se_x)₃ couples", *Journal of Alloys and Compounds*, Vol. 611, pp. 313-318. (NSC99-2221-E-007-093-MY3).
13. J.-S. Chang, ***S.-W. Chen**, K.-C. Chiu, H.-J. Wu and J.-J. Chen, 2014, "Liquidus projection of the Ag-Sn-Te ternary system", *Metallurgical and Materials Transactions A*, Vol. 45A, pp. 3728-3740. (NSC99-2221-E-093-MY3).
14. ***S.-W. Chen**, T.-K. Chen, C.-M. Hsu, J.-S. Chang and K. Pan, 2014, "Liquidus projections of Sn-Co-Ni and Sn-rich Sn-Ag-Co-Ni systems", *Journal of Electronic Materials*, Vol. 43(7), pp. 2487-2497. (NSC96-2218-E-007-012)
15. S.-K. Lin, R.-B. Chang, ***S.-W. Chen**, M.-Y. Tsai, and C.-M. Hsu, 2014, "Effects of zinc on the interfacial reactions of tin-indium solder joints with copper", *Journal of Materials Science*, Vol. 49, pp. 3805–3815. (NSC97-2221-E-007-067-MY3).
16. Y. Tang, Y. Qiu, L. Xi, X. Shi, W. Zhang, L. Chen, S.-M. Tseng, **S.-W. Chen**, *G. J. Snyder,

2014, "Phase diagram of In-Co-Sb system and thermoelectric properties of In-containing skutterudites", Energy & Environmental Science, Vol. 7, pp. 812–819 (NSC101-3113-P-008-001).

17. ***S.-W. Chen**, T.-K. Chen, J.-S. Chang, C.-M. Hsu and W.-A. Chen, 2014, "Interfacial reactions in Sn-Ag/Co couples", Journal of Electronic Materials, Vol. 43(2), pp. 636-639. (NSC 97-2221-E-007-067-MY3).
18. *C.-H. Wang, W.-H. Lai and **S.-W. Chen**, 2014, "Dissolution and Interfacial Reactions of (Cu,Ni)₆Sn₅ Intermetallic Compound in Molten Sn-Cu-Ni Solders", Journal of Electronic Materials, Vol. 40(1), pp. 195-203.

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19. ***S.-W. Chen**, C.-W. Hsu, S.-K. Lin and C.-M. Hsu, 2013, "Reaction evolution in Sn-20.0wt%In-2.8wt%Ag/Ni couples", Journal of Materials Research, Volume 28(23), pp 3257-3260. (NSC97-2221-E-007-067-MY3).
20. ***S.-W. Chen**, J.-Y. Lin, C.-M. Hsu, J.-S. Chang, J.-G. Duh and C.-H. Wang, 2013, "Ag whisker formation in Ag-In-Se alloys", Metallurgical and Materials Transactions A, Vol. 44A, pp. 5281-5283. (NSC 100-2221-E-007-087-MY3)
21. C.-H. Liu, H.-J. Wu, and ***S.-W. Chen**, 2013, "Liquidus projection of the ternary Bi-Sb-Te thermoelectric material system", Metallurgical and Materials Transactions A, Vol. 44A, pp. 5424-5433. (NSC99-2221-E-093-MY3).
22. S.-K. Lin, C.-W. Hsu, ***S.-W. Chen**, and C.-M. Hsu, 2013, "Interfacial reactions in Sn-20wt.%In-2.8wt.%Ag/Cu couples", Journal of Electronic Materials, Vol. 42, pp. 268-275, (NSC97-2221-E-007-067-MY3).
23. C.-M. Hsu and ***S.-W. Chen**, 2013, "Sn-Co/Ag and Sn-Co/Cu interfacial reactions with/without electromigration", Journal of Materials Science, Vol. 48(19), pp. 6640-6646. (NSC96-2218-E-007-012)
24. H.-J. Wu, W.-J. Foo, W. Gierlotka, ***S.-W. Chen**, G. J. Snyder, 2013, "Microstructure, liquidus projection and thermodynamic modeling of thermoelectric Ag-Pb-Te system", Materials Chemistry and Physics, Vol. 141, pp. 758-767 (NSC 99-2221-E-007-093-MY3 and 100-2221-E-155-019).
25. Y. Qiu, L. Xi, X. Shi, P. Qiu, W. Zhang, L. Chen, J. R. Salvador, J. Y. Cho, J. Yang, Y.-C. Chien, **S.-W. Chen**, Y. Tang and *G. J. Snyder, 2013, "Charge-Compensated Compound Defects in Ga-containing Thermoelectric Skutterudites", Advanced Functional Materials, Vol. 23, pp. 3194–3203. (NSC 101-3113-P-008-001).
26. ***S.-W. Chen**, H.-J. Wu, C.-W. Hsu, C.-I Chang and C.-F. Chang, 2013, "Interfacial reactions in In/Cu₂Se couples", Journal of the Taiwan Institute of Chemical Engineers, Vol. 44, pp. 402-406. (NSC 100-2221-E-007-087-MY3)
27. ***S.-W. Chen**, J.-S. Chang, K. Pan, C.-M. Hsu and C.-W. Hsu, 2013, "Directional solidification and liquidus projection of Sn-Co-Cu system", Metallurgical and Materials Transactions A, Vol. 44A, pp. 1656-1664 (NSC96-2218-E-007-012).
28. ***S.-W. Chen**, H.-J. Wu, C.-Y. Wu, C.-F. Chang and C.-Y. Chen, 2013, "Reaction evolution and alternating layer formation in Sn/(Bi_{0.25}Sb_{0.75})₂Te₃ and Sn/Sb₂Te₃ couples", Journal of Alloys and Compounds, Vol. 553, pp. 106-112. (NSC97-2221-E-007-067-MY3)
29. C.-Y. Chen, H.-J. Wu, and ***S.-W. Chen**, 2013, "Liquidus projection and phase equilibria isothermal section of Se-Sn-Te system", Journal of Alloys and Compounds, Vol. 547, pp. 100–106. (NSC99-2221-E-093-MY3).

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30. T. Ikeda, S. Iwanaga, H.-J. Wu, N. J. Marolf, **S.-W. Chen**, *G. J. Snyder, 2012, "A combinatorial approach to microstructure and thermopower of bulk thermoelectric materials: the pseudo-ternary PbTe-Ag₂Te-Sb₂Te₃ system", Journal of Materials Chemistry, Vol. 22, pp. 24335-24347.
31. C.-M. Chen, C.-M. Hsu and ***S.-W. Chen**, 2012, "Interfacial reactions in Sn-Co-(Cu)/Ni couples with/without current stressing", Journal of Electronic Materials, Vol. 41, No. 11, pp.

3205-3214. (NSC96-2218-E-007-012)

32. H.-J. Wu, ***S.-W. Chen**, T. Ikeda, *G. J. Snyder, 2012, "Reduced thermal conductivity in Pb-alloyed AgSbTe₂ thermoelectric materials", *Acta Materialia*, Vol. 60, pp. 6144-6151. (NSC 99-2221-E-007-093-MY3 and NSC 100-2917-I-007-001)
33. Y.-K. Chen, C.-M. Hsu, ***S.-W. Chen**, C.-M. Chen and Y.-C. Huang, 2012, "Phase equilibria of Sn-Co-Cu ternary system", *Metallurgical and Materials Transactions A*, Vol. 43(10), pp. 3586-3595. (NSC97-2221-E-007-067-MY3)
34. H.-J. Wu, *G. J. Snyder, ***S.-W. Chen**, and W.-J. Foo, 2012, "Ternary eutectic growth of nanostructured thermoelectric Ag-Pb-Te materials", *Applied Physics Letters*, Vol. 101(2), 023107. (NSC 99-2221-E-007-093-MY3 and NSC100-2917-I-007-001)
35. ***S.-W. Chen**, H.-J. Wu, C.-H. Liu, Y.-C. Chien and C.-C. Hu, 2012, "Dental arch wires with tooth-like color", *Advances in Materials Research*, Vol.1(1), pp. 31-35. (NSC96- 2218- E-007-012)
36. H.-C. Chang, S. L. Chang, *C.-H. Lin, ***S.-W. Chen**, 2012, "Design and synthesis of unsymmetric phosphinated diamines for high-Tg transparent polyimides", *Polymer*, Vol. 5, pp. 1651-1658.
37. ***S.-W. Chen**, C.-F. Yang, H.-J. Wu, R.-B. Chang and C.-M. Hsu, 2012, "Interfacial reactions in the Sn-In-Zn/Ag and Sn-In-Zn/Ni couples", *Materials Chemistry and Physics*, Vol. 132, pp. 481-487. (NSC97-2221-E-007-067-MY3)
38. ***S.-W. Chen**, A.-R. Zi, W. Gierlotka, C.-F. Yang, C.-H. Wang and S.-K. Lin, 2012, "Phase equilibria of Sn-Sb-Cu system", *Materials Chemistry and Physics*, Vol. 132, pp. 703-715. (NSC95-2221-E-007-205).
39. H.-J. Wu, ***S.-W. Chen**, T. Ikeda, G. J. Snyder, 2012, "Formation of ordered nano-wire microstructures in thermoelectric Pb-Ag-Sb-Te", *Acta Materialia*, Vol. 60, pp. 1129-1138. (NSC 99-2221-E-007-093-MY3 and NSC 100-2917-I-007-001)
40. C.-N. Chiu, C.-M. Hsu, ***S.-W. Chen** and H.-J. Wu, 2012, "Phase equilibria of Sn-Bi-Te ternary system", *Journal of Electronic Materials*, Vol. 41(1), pp. 22-31. (NSC97-2221-E-007-067-MY3)

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41. ***S.-W. Chen**, Y.-R. Lin, H.-J. Wu, R.-B. Chang and H.-M. Lin, 2011, "Evolution of the Sn/Ni-8.0at%V interfacial reaction paths", *Journal of Materials Research*, Vol. 26(22), pp. 2838-2843. (NSC97-2221-E-007-067-MY3)
42. ***S.-W. Chen**, C.-M. Hsu, C.-Y. Chou and C.-W. Hsu, 2011, "Isothermal section of ternary Sn-Zn-Ni phase equilibria at 250°C", *Progress in Natural Science: Materials International*, Vol. 21, pp. 386-391, (NSC 97-2221-E-007-067-MY3).
43. H.-J. Wu and ***S.-W. Chen**, 2011, "Phase equilibria of Ag-Sb-Te thermoelectric materials", *Acta Materialia*, Vol. 59, pp. 6463-6472. (NSC97-2221-E-007-067-MY3).
44. ***S.-W. Chen**, W.-Y. Lee, C.-M. Hsu, C.-F. Yang, H.-Y. Hsu and H.-J. Wu, 2011, "Sn-In-Ag phase equilibria and Sn-In-(Ag)/Ag Interfacial reactions", *Materials Chemistry and Physics*, Vol. 128(3), pp. 357-364. (NSC97-2221-E-007-067-MY3).
45. ***S.-W. Chen**, Y.-R. Lin, H.-J. Wu and R.-B. Chang, 2011, "Interfacial reactions in the Sn-Pb/Ni-8.0at%V couples", *Journal of Electronic Materials*, Vol. 40(7), pp.1527-1532. (NSC97-2221-E-007-067-MY3).
46. C.-P. Lin, C.-M. Chen*, Y.-W. Yen, H.-J. Wu, **S.-W. Chen**, 2011, "Interfacial reactions between high-Pb solders and Ag", *Journal of Alloys and Compounds*, Vol. 509, pp. 3509-3514.. (NSC 96-2221-E-005-064-MY3)
47. H.-J. Wu and ***S.-W. Chen**, 2011, "Microstructures and liquidus projection of the ternary Ag-Sb-Te system", *Journal of Alloys and Compounds*, Vol. 509, pp. 656-668. (NSC97-2221-E-007-067-MY3).
48. S.-J. Cherng, *C.-M. Chen, W.-P. Dow, C.-H. Lin and **S.-W. Chen**, 2011, "Chemical Deposition of Ni/Pt Bi-Layer on Polyimide Film as Flexible Counter electrodes for Dye-Sensitized Solar Cells", *Electrochemical and Solid-State Letters*, Vol. 14 (7), pp. 13-15.

49. Y.-C. Huang and ***S.-W. Chen**, 2011, "Effects of Co alloying and size on solidification and interfacial reactions in the Sn-57wt%Bi-(Co)/Cu couples", *Journal of Electronic Materials*, Vol. 40(1), pp. 62-70. (NSC97-2221-E-007-067-MY3)
50. ***C.-H. Wang**, C.-Y. Kuo, H.-H. Chen and **S.-W. Chen**, 2011, "Effects of current density and temperature on Sn/Ni interfacial reactions under current stressing", *Intermetallics*, Vol. 19, pp. 75-80. (#NSC97-2218-E-194-006).

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51. Y.-C. Huang and ***S.-W. Chen**, 2010, "Co alloying and size effects on solidification and interfacial reactions in the Sn-Zn-(Co)/Cu couples", *Journal of Materials Research*, Vol. 25(12), pp. 2430-2438. (NSC97-2221-E-007-067-MY3)
52. ***S.-W. Chen**, Y.-K. Chen, H.-J. Wu, Y.-C. Huang and C.-M. Chen, 2010, "Co solubility in Sn and Interfacial reaction in Sn-Co/Ni couples", *Journal of Electronic Materials*, Vol. 39(11) pp. 2418-2428. (NSC97-2221-E-007-067-MY3).
53. ***S.-W. Chen**, H.-J. Wu, Y.-C. Huang and W. Gierlotka, 2010, "Phase equilibria and solidification of ternary Sn-Bi-Ag alloys", *Journal of Alloys and Compounds*, Vol. 497(1-2), pp.110-117. (NSC96-221-E-007-001).
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57. ***W.-P. Dow**, G.-L. Liao, S.-E. Huang and **S.-W. Chen**, 2010, "Modification of Cu Nanoparticles with a Disulfide for Polyimide Metallization", *Journal of Materials Chemistry*, Vol. 20, pp. 3600-3609. (NSC 96-2218-E-007-012).
58. C.-F. Yang and ***S.-W. Chen**, 2010, "Interfacial Reactions in Au/Sn/Cu Sandwich Specimens", *Intermetallics*, Vol. 18, pp. 672-678. (NSC96-2218-E-007-012).
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67. *陳信文、黃莉玲、吳欣潔、劉人文、李岳澤、葉銘泉，2009，"牙齒矯正線磨擦力"，*化工*，Vol. 56(1), pp. 92-106. (NSC96-2218-E-007-012).

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71. S.-K. Lin, C.-F. Yang, S.-H. Wu, and **S.-W. Chen**, 2008, "Liquidus projection and solidification of the Sn-In-Cu ternary alloys", *Journal of Electronic Materials*, Vol. 37(4), pp. 498-506. (NSC 96-2221-E-007 -001)
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74. C.-C. Wang and **S.-W. Chen**, 2008, "Sn/Co solid/solid interfacial reactions", *Intermetallics*, Vol. 16, pp. 524-530. (NSC96-2221-E-007 -001)
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77. **S.-W. Chen**, A.-R. Zi, P.-Y. Chen, H.-J. Wu, Y.-K. Chen and C.-H. Wang, 2008, "Interfacial reactions in the Sn-Sb/Ag and Sn-Sb/Cu couples", *Materials Chemistry and Physics*, Vol. 111(1), pp. 17-19. (NSC95-2218-E007-028)
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(* corresponding author)

Books (and Book chapters) [專書(含專章)]

1. 王朝弘、陳信文, "熱分析" 於 "材料分析" (ISBN: 978-986-90890-0-S), 汪建民主編, pp: 564-614, 中國材料科學學會 (2014)。
2. 陳信文、李文乾, "台灣化工史第三篇: 台灣現代化學工業史-擴張期(1986-2010)-新科技產業的創立"(ISBN:978-986-88704-2-0), 台灣化學工程學會, (2012)。
3. **S.-W. Chen**, W. Gierlotka, H.-J. Wu, and S.-K. Lin, "Phase Diagrams and Their Applications in Pb-Free Soldering", in "Lead-Free Solders: Materials Reliability for Electronics" (ISBN: 9780470971826), edited by K. N. Subramanian, pp. 13-44, Wiley, (2012).
4. **S.-W. Chen**, C.-M. Chen, C.-H. Wang, and C.-M. Hsu, "Effects of Electromigration on Electronic Solder Joints ", in "Lead-Free Solders: Materials Reliability for Electronics" (ISBN: 9780470971826), edited by K. N. Subramanian, pp. 401-422, Wiley, (2012).
5. **S.-W. Chen**, C.-H. Wang, S.-K. Lin and C.-N. Chiu, "Phase Diagrams of Pb-Free Solders and their Related Materials Systems", in "Lead-free Electronic Solders" (ISBN: 978-0387-48431-0), A Special issue of the Journal of Materials Science: Materials in Electronics, (invited review), edited by K. N. Subramanian, pp. 19-37, Springer, (2007).
6. 福岡義孝(原著), 陳信文(審閱), 王姝雯(翻譯), "電子構裝技術" (ISBN 986-7688-37-6), 普林斯頓國際有限公司, (2005)。
7. 陳信文、陳立軒、林永森、陳志銘 合著, "電子構裝技術與材料" (ISBN 986-412-133-2), 高立圖書公司, (2004)。
8. 陳信文、陳立軒、林永森、陳志銘 合譯, (原著 Tummala) "微系統構裝基礎原理" (ISBN 957-493-711-9), 高立圖書公司, (2002)。
9. D J. Chakrabarti, D. E. Laughlin, **S.-W. Chen**, and Y.A. Chang, "The Cu-Ni System", in "Binary Alloy Phase Diagrams" (ISBN: 978-0-87170-403-0), 2nd edition, Vol. 2, T. B. Massalski, et al., eds., ASM, Materials Park, Ohio, USA, 1442-1446, (1990).

Patents (專利)

1. 楊雅惠、楊士禮、高振裕、周更生、**陳信文**，"合成銦鎳鋅氧化物之方法及使用其形成銦鎳鋅氧化物薄膜之方法"，中華民國專利 I415794，專利權人:國立清華大學，(2013/11/21) (2013).
2. **S.-W. Chen** and H.-J. Wu, " Thermoelectric material with low electric resistivity and manufacture thereof", US patent 8,398,897 B2, Assignee: National Tsing Hua University, (2013/03/19) (2013).
3. 竇維平、廖國良、**陳信文**，"軟性電子材料表面金屬化之方法"，中華民國專利I379919，專利權人:國立中興大學與國立清華大學，(2012/12/21) (2012).
4. Y.-H. Yang, S. S. Yang, C.-Y. Kao, K.-S. Chou and **S.-W. Chen**, "Method for preparing IGZO particles and method for preparing IGZO film by using the IGZO particles", US patent 8278140, Assignee: National Tsing Hua University, (2012/10/02) (2012).
5. **S.-W. Chen**, C.-L. Yang, J.-W. E. Chen, " Orthodontic archwires of various colors and their preparation methods", US patent 7704073, Assignee: National Tsing Hua University, (2010/04/27) (2010).
6. **陳信文**，"低電遷移效應合金導線及其設計方法"，中華民國國專利 I312370，專利權人:國立清華大學，(2009/07/21 -2023/04/17) (2009)
7. **陳信文**、王朝弘、陳伯胤、陳建志，"焊接電子零件於基板上的方法及其所製之電子元件"，中華民國國專利 I298610，專利權人:達方電子，(2008/07/01~2026/05/10) (2008)
8. **S.-W. Chen**, "Electromigration effect-insignificant alloys and the alloys' designing method", US patent 7261856, Assignee: National Tsing Hua University, (2007/8/28 -2023/09/08) (2007)
9. **陳信文**、楊喬陵、陳霽璋，"具多種顏色之金屬牙齒矯正線與其製備之方法"，中華民國國專利 I281389，專利權人:國立清華大學，(2007/05/21 - 2024/09/21) (2007)
10. **陳信文**、林士剛、楊青峰、黃育智、鍾定穎、蔡穎玫、訾安仁，"軟鋅兩基材的方法及其所形成的鋅接點"，中華民國國專利 I238095，專利權人:國立清華大學，(2005/08/21 - 2024/04/28) (2005)
11. 周更生、宋敏安、劉建偉、**陳信文**、呂世源，"連通性多孔鋁材的製造方法"，中華民國國專利 I223668，專利權人:三匠科技，(2004/11/11-2021/06/19)
12. **陳信文**、謝博榮、林旻弘、王進龍，"以界面反應來製作光學材料與元件"，中華民國專利 I127730，專利權人:中科院，(2001/02/01-2017/11/20)

Awards (曾獲得之國內外學術獎及其他學術榮譽)

a: Personal award (個人獎項)

1. 亞太材料學院院士 (Asia Pacific Academy of Materials (APAM) Academician), (2013).
2. 中國材料科學學會會士 (Materials Research Society-Taiwan Fellow), (2012).
3. 美國礦物、金屬與材料學會**EMPMD傑出服務獎** (TMS EMPMD Distinguished service award), TMS EMPMD, (2011)
4. 美國金屬學會會士 (**ASM Fellow**) , ASM International (2010)
5. 2009 侯金堆傑出榮譽獎-材料科學類 (Ho Chin Tui Materials Science Award)，侯金堆文教基金會，(2010)
6. 金開英獎(Mr. Kai-Ying Jin Award)，台灣化學工程學會，(2008)
7. 優秀教職員(Tsing Hua Outstanding Employees)，國立清華大學，(2008)
8. 清華特聘教授 (Tsing Hua Distinguished Professor)，國立清華大學，(2007)
9. 國科會傑出研究獎 (National Science Council Outstanding Research Award) ，國科會，(2005-2007)
10. 工學院傑出教學獎 (Outstanding Teaching Award of College of Engineering)，國立清華大學工學院，(2005)
11. 賴再得教授獎 (Professor Tsai-Teh Lai Award)，中國化學工程學會，(2004)

12. 傑出教學獎 (Outstanding Teaching Award), 國立清華大學, (2000)
13. 中華民國第38屆十大傑出青年 (38th Ten National Outstanding Young Persons of ROC), 青商會與十傑基金會, (2000)
14. 學術勵進獎 (Young Investigator's Achievement Award) (中國化學工程學會, 1996)

學術活動

國內專業學會事務 (Activities in domestic professional societies)

1. (理)監事: 中國工程師學會新竹分會, 2010~迄今
2. (常務)理事: 中國材料學會, 2009~迄今
3. 學術委員: 中國材料學會學術委員會, 2009~迄今
4. 主任委員: 台灣化學工程學會國際關係委員會, 2011/2~2011/8
5. 常務理事: 台灣化學工程學會, 2005, 2007~2010
6. 理事: 台灣化學工程學會, 2004~2010
7. 評選委員: 十大傑出工程師, 中國工程師學會, 2007~2010
8. 主任委員: 學術委員會, 中國化學工程學會, 2003/2~ 2005/12
9. 主任委員: 會刊及叢書委員會, 中國化學工程學會, 2003 /2~ 2005/12
10. 評選委員: 優秀青年工程師, 中國工程師學會, 1999~2002
11. 副秘書長: 中國材料學會, 1999~2002

國際專業學會與國外大學事務 (Activities in the international professional societies and foreign universities)

1. **Chairperson:** Alloy Phase Committee, TMS, 2004/3~ 2006/2; 2014/3~now
2. **Committee Member:** Alloy Phase Diagram Committee, ASM, 2006/8~now
3. **Council Member:** EMPMD, TMS, 2004/3~now.
4. **Advisor:** JOM, TMS, 2004/3~2008/3; 2012/3~now
5. **Chairperson,** The GRE Asia Advisory Council, 2013
6. **External Expert,** EU COST Action MP0602, "Advanced Solder Materials for High Temperature Application", Brno, Czek, June 2011
7. **Visiting Professor** (Lecturer of the Phase Equilibria of Materials course): Materials Science and Engineering Department, University of Wisconsin-Madison, Madison, WI, USA, 2007/8~2007/12
8. **Invited Professor:** Laboratoire Genie des materiaux, Ecole Polytechnique de l'universite de Nantes, Nantes, France, 2002/6~ 2002/7
9. **Visiting Scholar:** Materials Science and Engineering Department, Lehigh University, Bethlehem, PA, USA, 2000/6~ 2000/8

編輯任務 (Editorial duties)

1. **Editorial board member:** Advances in Materials Research [ISSN: 2234-0912(Print), ISSN: 2234-179X(Online)], 2012/1~ now
2. **Editorial board member:** Progress in Natural Science: Materials International, 2011/1~ now
3. **Editorial committee member:** Journal of Phase Equilibria and Diffusion, 2010/1~now
4. **Editorial committee member:** Journal of Engineering (National Chung Hsing University), 2010/1~now
5. **Associate editor:** Journal of Electronic Materials, 2006/8 ~now
6. **Editorial board member:** Nanoscience and Nanotechnology Letters, 2009/3~ 2011/12
7. **Editorial board member (編輯委員):** 化工(Cheical Engineering), 台灣化學工程學會, 2006/2~2011/1.
8. **Guest editor:** Journal of Electronic Materials, 2003/11, 2006/1, 2006/11, 2007/11
9. **Editor-in-Chief (總編輯):** 化工(Cheical Engineering), 中國化學工程學會, 2003/2~ 2006/1

10. **Regional editor:** Facets, IUMRS, 2000/11~2006/12
11. **Guest editor (主編):** 材料會訊(Materials Science Bulletin), 中國材料科學學會, 1999/6
12. **Guest editor (主編):** 電子資訊(Electronics Spectrum), EDMA and SID, 1996/9

國際邀請演講 (International invited talks):

1. "Phase diagrams of thermoelectric Co-Sb-In ternary system", Presented at the 2014 IUMRS-ICEM, Taipei, Taiwan, June 2014 (Invited speech).
2. "Phase equilibria of thermoelectric materials: Ag-Sb-Te and AgSbTe₂-AgSbSe₂", Presented at CALPHAD XLIII meeting, Chang Sha, China, June 2014 (Invited speech)
3. "CoSb₃-InSb Isoplethal Section of Co-Sb-In Ternary Phase Diagram", Presented at the 143rd TMS 2014 annual meeting, San Diego, CA, USA, March 2014 (Invited speech).
4. "Interfacial Reactions of Sn with the n-Type Bi₂(Te,Se)₃ and p-Type (Bi,Sb)₂Te₃ Thermoelectric Materials ", Presented at the 143rd TMS 2014 annual meeting, San Diego, CA, USA, March, 2014 (Invited speech).
5. "Ag Whisker Growth of Ag-In-Se Alloys and Alternating Layer Formation in the In/Ag₂Se Reaction Couples ", Presented at the 143rd TMS 2014 annual meeting, San Diego, CA, USA, March, 2014 (Invited speech).
6. "Electronic soldering and thermoelectric materials: Phase diagrams and microstructures", Presented at the **COST-Materials in a resource-constrained world** conference, Deft University, November 19, 2013 (Invited speech).
7. "相圖在電子軟鐸上之應用", Presented at the 「海峽兩岸先進半導體封裝材料發展趨勢研討會」, 廈門、中國, June 14, 2013 (Invited Lecture).
8. "相圖與應用:熱電與電子軟鐸", Presented at the 「海峽兩岸三地新材料高端論壇」, 天津、中國, June 17, 2013 (Invited Lecture).
9. "Reaction evolution and alternating layer formation in Sn/(Bi_{1-x}Sb_x)₂Te₃ couples", presented at the 142nd TMS annual meeting, **San Antonio, TX, USA, March, 2013.** (Invited speech)
10. "Interfacial reactions in the Sn-20wt%In-xwt%(Ag, or Zn)/(Cu, or Ni) couples", Presented at *Visual-JW 2012* (The International Symposium on Visualization in Joining & Welding Science through Advanced Measurements and Simulation) meeting, **Osaka, Japan, November, 2012.** (Keynote Speech).
11. "Phase diagrams and applications: in electronic soldering and thermoelectric materials", *Department of Materials Science and Engineering, UCLA, Los Angeles, USA, 2012.*
12. "Phase diagrams and applications: in electronic soldering and thermoelectric materials", *Department of Materials Science and Engineering, Univesity of Michigan, Ann Arbor, USA, 2012.*
13. "Directional solidification and liquidus projection of Sn-Co-Cu system", Presented at the *141st TMS annual meeting*, **Orlando, FL, USA, March, 2012.** (Invited speech)
14. "CALPHAD method and its application to lead-free solder materials", Presented at *12th Annual Meeting of International Union of Materials Research Societies (IUMRS) - International Conference in Asia (ICA)*, **Taipei, September 2011.** (Invited speech)
15. "Isothermal section and liquidus projection of the Sn-Zn-Ni ternary system", Presented at *12th Annual Meeting of International Union of Materials Research Societies (IUMRS) - International Conference in Asia (ICA)*, **Taipei, September 2011.** (Invited speech)
16. "Electromigration effects upon electronic solder joints", *Harbin Institute of Technology, Harbin, China, 2011* .
17. "Electromigration effects upon electronic solder joints", *Xiangtan University, Xiangtan, China, 2011* .
18. "Phase diagrams and their applications in electronic solder joints", *Central South University, Changsha, China, 2011* .
19. "Interfacial reactions in the Sn-(Pb)/Ni-7wt%V couples", Presented at the *140th TMS annual meeting*, **San Diego, CA, USA, March, 2011.** (Invited speeh)

20. "Sn-In-Ag phase equilibria and Sn-In/Ag Interfacial reactions", Presented at the *Materials Science and Technology 2010 Meeting*, **Pittsburgh, PA, USA, October 2010**. (Invited speech)
21. "Unusual Phenomena Observed in Soldering: Understanding Through Thermodynamics", Presented at the *Materials Science and Technology 2010 Meeting*, **Pittsburgh, PA, USA, October 2010**. (Invited speech)
22. "Interfacial reactions in the Sn-Co/Ni and Sn-Co-Cu/Ni couples", Presented at the *139th TMS annual meeting*, **Seattle, WA, USA, February 2010**. (Invited speech)
23. "Phase diagrams and their applications in electronic soldering", Presented at the *Japan-Taiwan Joint Symposium on New Functional Materials and Their Nano- scale Analysis*, Kyoto University, Kyoto, Japan, **November 2009**. (Invited speech)
24. "Interfacial reactions in the Solder/Ni-7wt%V alloy couples", Presented at the *Materials Science and Technology 2009 Meeting*, **Pittsburgh, PA, USA, 2009**. (Invited speech)
25. "Phase diagrams and their applications in electronic packaging", Department of Materials Science and Engineering, *Tsinghua University*, **Beijing, China, 2009**.
26. "Interesting Phenomena Observed in The Sn/Co Interfacial Reactions", Presented at the *138th TMS Annual Meeting*, **San Francisco, CA, USA, 2009**. (Invited speech)
27. "Solidification of Sn-Bi-Ag and Sn-Bi-Ni alloys", Presented at the *Materials Science and Technology 2008 Meeting*, **Pittsburgh, PA, USA, 2008**. (Invited speech)
28. "Sn/Co Interfacial Reactions", Presented at the *137th TMS Annual Meeting*, **New Orleans, LA, USA, 2008**. (Invited speech)
29. "Some interesting phenomena observed in the soldering systems", *Department of Materials Science and Engineering, Rensselaer Polytechnic Institute*, **Troy, NY, USA, 2007**.
30. "Determinations of solidification curves of aluminum alloys - and some other things I learned from Alcoa", *Alcoa Research Center, Alcoa center*, **PA, USA, 2007**.
31. "Some interesting phenomena observed in the soldering systems", *Department of Materials Science and Engineering, Pennsylvania State University*, **University Park, PA, 2007**.
32. "Some interesting phenomena observed in the soldering systems", *Department of Materials Science and Engineering, Michigan State University*, **East Lansing, MI, USA, 2007**.
33. "Electronic soldering-Pb-free solders and Interfacial reactions", *ThermoFisher Scientific*, **Brookfield, WI, USA, 2007**.
34. "Some interesting phenomena observed in the soldering systems", *Department of Materials Science and Engineering, University of Wisconsin-Madison*, **Madison, WI, 2007**.
35. "Interfacial Reactions and Phase diagrams of Pb-Free Solders and Related Materials Systems," presented at the *Symposium on Phase Stability and Defect Structures in Advanced Materials: in honoring Professor Austin Chang, Distinguished Professor at University of Wisconsin*, Crown Plaza Orlando Resort, **Orlando, FL, USA, 2007**. (Invited speech)
36. "Unusual interfacial reactions in the Sn/Ni-7wt.%V and Sn/Te couples", Presented at the *136th TMS Annual Meeting*, **Orlando, FL, USA, 2007**. (Invited speech)
37. "Electric Current Effects upon Interfacial Reactions in the Solder Joints", Department of Materials Science and Engineering, *Beijing University of Technology*, **Beijing, China, 2006**.
38. "Electromigration effects upon interfacial reactions in teh Pb-free solder joints", Presented at the *2006 International Conference on Chemical and Molecular Technologies*, **Tainan, Taiwan, 2006**. (Invited speech)
39. "Melting point lowering of the Sn-Sb alloys caused by substrate dissolution", Presented at the *135th TMS Annual Meeting*, **San Antonio, TX, USA, 2006**. (Invited speech)
40. "Phase Equilibria of the In-Sn-Cu System and the In-Sn/Cu Interfacial Reactions", Presented at *Materials Science and Technology 2005 Meeting*, **Pittsburgh, PA, USA, 2005**. (Invited speech)
41. "Phase equilibria and interfacial reactions of Pb-free solders/UBM systems", *Department of Materials Science and Engineering, KAIST*, **Daejeon, Korea, 2005**.
42. "Electric current effects upon interfacial reactions in the solder joints", Presented at the *SEMICON Korea 2005*, **Seoul, Korea, 2005**. (Invited speech)
43. "Phase equilibria and interfacial reactions in the indium composite solder related materials

systems", *School of Materials Science and Engineering, Seoul National University, Seoul, Korea, 2005.*

44. "Electric current effects upon interfacial reactions in the solder joints", *Samsung Electronics, Gyeonggi-Do, Korea, 2005.*
45. "Solidification of the quaternary Sn-Ag-Cu-Ni alloys", Presented at the *Materials Science and Technology 2004 Meeting, New Orleans, LA, USA, 2004.* (Invited speech)
46. "Electromigration effects upon the Pb-free solder/Nickel interfacial reactions in the electronic products", Presented at the *Second 21st Century COE, "Towards Creating New Industries Based on Inter-Nanoscience", and 7th Sanken International Symposium on Hybridization of Chemistry, Biology and Materials Science, Osaka, Japan, 2004.* (Invited speech)
47. "Relationship between mechanical properties and intermetallic compound formation at the Sn-0.7(0.5, 0.3, 0.1)wt%Cu/Ni joints", Presented at the *132nd TMS Annual Meeting, San Diego, CA, USA, 2003.* (Invited speech)
48. "Phase equilibria and solidification properties of Sn-Cu-Ni alloys", Presented at the *131st TMS Annual Meeting, Seattle, WA, USA, 2002.* (Invited speech)
49. "Phase transformations and interfacial reactions in electronic materials", Presented at the *2001 ChemTech Conference, Chicago, IL, USA, 2001.* (Invited speech)
50. "Interfacial reactions in the Ag-Sn/Au couples", Presented at the *130th TMS Annual Meeting, New Orleans, LA, USA, 2001.* (Invited speech)
51. "Interfacial Reactions in the Ag-Sn/Cu Couples", Presented at the *128th TMS Annual Meeting, San Diego, CA, USA, 1999.* (Invited speech)
52. "Determination of Solidification Curves of Alloys", Presented at the *Australasia Pacific Forum on Intelligent Processing & Manufacturing of Materials, Brisbane, Australia, 1997.* (Invited speech)

國際學術會議議程籌委與議程主席 (Symposium organizer and session chair of international meetings)

1. **Session Chair:** *131st TMS Annual Meeting~ 144th TMS Annual Meeting (2002~2015); Materials Science and Technology Meeting (2010, 2008, 2005, 2004), 2001 TMS Fall Meeting, 2001 (2001); "Materials Modeling, Simulation, and Characterizations symposium", 12th Annual Meeting of International Union of Materials Research Societies (IUMRS)-International Conference in Asia (ICA), Taipei, 2012; Visual-JW 2012, Osaka, Japan, November, 2012.*
2. **Symposium Organizer:** "Alloys and Compounds for Thermoelectric and Solar Cell Application Symposium III", The Minerals, Metals & Materials Society 2015 Annual Meeting, Orlando, FL, 2015.
3. **Symposium Organizer:** "Group E: Modeling, Processing and Characterization", International Union of Materials Research Societies – International Conference on Electronic Materials 2014 (IUMRS-ICEM 2014), Taipei, Taiwan, 2014.
4. **Symposium Organizer:** "Alloys and Compounds for Thermoelectric and Solar Cell Application Symposium II", The Minerals, Metals & Materials Society 2014 Annual Meeting, San Diego, CA, 2014.
5. **Symposium Organizer:** "Alloys and Compounds for Thermoelectric and Solar Cell Application Symposium", The Minerals, Metals & Materials Society 2013 Annual Meeting, San Antonio, TX, 2013.
6. **Advisory Committee Member:** Visual-JW 2012 (The International Symposium on Visualization in Joining & Welding Science through Advanced Measurements and Simulation) meeting, Osaka, Japan, November, 2012.
7. **Symposium Organizer:** "Materials Modeling, Simulation, and Characterizations symposium", *12th Annual Meeting of International Union of Materials Research Societies (IUMRS)-International Conference in Asia (ICA), Taipei, 2012.*

8. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials X Symposium”, *The Minerals, Metals & Materials Society 2011 Annual Meeting*, **San Diego, CA, 2011.**
9. **Symposium Organizer:** “Lead-free Solders and Next Generation Interconnects: Emerging Issues in Manufacturing”, *Materials Science and Technology 2010 Meeting*, **Houston, TX, 2010.**
10. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials IV Symposium”, *The Minerals, Metals & Materials Society 2010 Annual Meeting*, **Seattle, WA, 2010.**
11. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VIII Symposium”, *The Minerals, Metals & Materials Society 2009 Annual Meeting*, **San Francisco, CA, 2009.**
12. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VII Symposium”, *The Minerals, Metals & Materials Society 2008 Annual Meeting*, **New Orleans, LA, 2008.**
13. **Symposium Organizer:** “Hume-Rothery Symposium”, *The Minerals, Metals & Materials Society 2008 Annual Meeting*, **New Orleans, LA, 2008.**
14. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials VI Symposium”, *The Minerals, Metals & Materials Society 2007 Annual Meeting*, **Orlando, FL, 2007.**
15. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials V Symposium”, *The Minerals, Metals & Materials Society 2006 Annual Meeting*, **San Antonio, TX, 2006.**
16. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials IV Symposium”, *The Minerals, Metals & Materials Society 2005 Annual Meeting*, **San Francisco, CA, 2005.**
17. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials III Symposium”, *The Minerals, Metals & Materials Society 2004 Annual Meeting*, **Charlotte, NC, 2004.**
18. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials Symposium”, *The Minerals, Metals & Materials Society 2003 Annual Meeting*, **San Diego, CA, 2003.**
19. **Symposium Organizer:** “Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials Symposium”, *The Minerals, Metals & Materials Society 2002 Annual Meeting*, **Seattle, WA, 2002.**
20. **Symposium Organizer:** “Lead-Free, Lead-Bearing Solders and Alternative Surface Finishes for Electronic Packaging Symposium”, *The Minerals, Metals & Materials Society 2001 Fall Meeting*, **Indianapolis, IN, 2001.**