

Chen, Chun (陳鈞)

Professor

B.S. in Metallurgical Engineering National Cheng Kung University 1970	Research and Professional Interests
M.S. in Materials Engineering Rensselaer Polytechnic Institute 1974	1. Welding Metallurgy
Ph.D. in Materials Engineering Rensselaer Polytechnic Institute 1976	2. Microstructure and Mechanical Properties
	3. Laser Materials Processing
	4. Corrosion

Projects (started from 2010)

1. 冷加工條件對 301 不銹鋼板材及其雷射銲件之機械性質與氫脆敏感性影響研究, 國科會, NSC99-2221-E-002-063-MY3, 99/8/1-102/7/31, NT\$ 3,212,000.
2. 壓力槽低合金鋼異材銲件之高溫水環路腐蝕疲勞特性研究, 國科會/原能會科技學術合作研究計畫, 101-NU-E-002-001-NU, 101/1/1-101/12/31, NT\$ 666,000.
3. A508 steel/Alloy 52/316L SS 異材金屬銲件之高溫腐蝕疲勞特性研究, 國科會/原能會科技學術合作研究計畫, NSC100-NU-E-002-002, 100/1/1-100/12/31, NT\$ 630,000.
4. 銲接參數對異質金屬銲件之應力腐蝕及腐蝕疲勞特性探討", 國科會/原能會科技學術合作研究計畫, 99-NU-E-002-001, 99/1/1-99/12/31, NT\$ 790,000.

SCI Papers

1. Leu-Wen Tsay, S. T. Chang and **Chun Chen**, "Fatigue crack growth characteristics of a Ti-15V-3Cr-3Sn-3Al alloy with variously aged conditions" *Materials Transactions*, in press.
2. H. A. Chu, M. C. Young, H. C. Chu, L.W. Tsay and **C. Chen**, 2012 "Hot Cracking Susceptibility of Alloy 52M Weld Overlays onto CF8 Stainless Steel," *Journal of Nuclear Materials*, 433, 419-423. (2013)
3. L.W. Tsay, Y.J. Lin, **C. Chen**, "The effects of rolling temperature and sensitization treatment on the sulfide stress corrosion cracking of 304L stainless steel," *Corrosion Science*, Volume 63, Pages 267-274. (2012)
4. C.C. Lin, C.H. Shu, **C. Chen**, R.K. Shiue and H.J. Shy, " Brazing porous tungsten and molybdenum using palladium and titanium foils," *International Journal of Refractory Metals and Hard Materials*, 31, 284-287. (2012)

5. M.Y. Lu, L.W. Tsay and **C. Chen**, "Notched Tensile Fracture of Ti-6Al-4V Laser Welds at Elevated Temperatures", *Materials Transactions*, Vol. 53, 1042-1047.(2012)
6. Leu-Wen Tsay, Yan-Jie Wu and **Chun Chen**, "Notched Tensile and Impact Fracture of Ti-15-3 Laser Welds", *Metall. & Mater. Trans.*, 42A, 3778-3784. (2011).
7. Yen-Chieh Wu, Leu-Wen Tsay and **Chun Chen**, "The Effect of Preheating on Notched Tensile Strength and Impact Toughness of Ti-6Al-6V-2Sn Laser Welds",*Materials Transactions*, 52, 406-411. (2011).
8. C. C. Lin, R. K. Shiue, S. C. Shi and **C. Chen**, "Vacuum Brazing Mo Using Ti-Ni-Nb Braze Alloys", *International Journal of Refractory Metal and Hard Materials*,29, 641-644. (2011).
9. Wei-Chih Chung, Jiunn-Yuan Huang, Leu-Wen Tsay and **Chun Chen**, "Stress Corrosion Cracking in the Heat-Affected Zone of A508 Steel Welds under High-Temperature Water ", *Journal of Nuclear Materials*, 408, 125-128. (2011)
10. Wei-Chih Chung, Jiunn-Yuan Huang, Leu-Wen Tsay and **Chun Chen**, "Microstructure and Stress Corrosion Cracking Behavior of the Weld Metal in Alloy 52 – A508 Dissimilar Welds", *Materials Transactions*, 52, 12-19. (2011)
11. L.W. Tsay, C. L. Hsu and **C. Chen**, "The Influence of Microstructures on the Notched Tensile Fracture of Ti-6Al-6V-2Sn Welds at Elevated Temperatures", *ISIJ International*, 50, 128-132. (2010)
12. C. L. Lai, L.W. Tsay, W. Kai and **C. Chen**, "The Effects of Cold Rolling and Sensitisation on Hydrogen Embrittlement of AISI 304L Welds", *Corrosion Science*, 52, 1187-1193. (2010)
13. L.W. Tsay, C. L. Hsu and **C. Chen**, "Notched Tensile Fracture of Ti-4.5Al-3V-2Fe-2Mo Welds at Elevated Temperatures", *Materials Chemistry and Physics*, 120, 715-721. (2010)
14. L.W. Tsay, Y. S. Ding, W. C. Chung and **C. Chen**, "Fatigue Crack Growth Behavior of Ti-4.5Al-3V-2Fe-2Mo Laser Welds", *Metall. & Mater. Trans.*, 41A, 2010, 1502-1510. (2010)
15. M. F. Chiang and **C. Chen**, "Induction-Assisted Laser Welding of IN-738 Nickel-Base Superalloy", *Materials Chemistry and Physics*, 114(1), 415-419. (2009)
16. L. W. Tsay, Y. S. Ding, M. F. Chiang, and **C. Chen**, "Gaseous Hydrogen Embrittlement of PH 13-8 Mo Steel", *Journal of Nuclear Materials*, 385, 538-544. (2009)

17. Y. S. Ding , L.W. Tsay and **C. Chen**, "The effects of hydrogen on fatigue crack growth behaviour of Ti-6Al-4V and Ti-4.5Al-3V-2Mo-2Fe alloys", *Corrosion Science*, 51, 1413-1419. (2009)
18. W.C. Chung, L.W. Tsay, and **C. Chen**, "Microstructure and Notch Properties of Heat-Treated Ti-4.5Al-3V-2Fe-2Mo Laser Welds", *Materials Transactions*, 50 (3), 2009, P. 544-550. (2009)
19. Leu-Wen Tsay, Chun-Xian Lee, and **Chun Chen**, "Notched Tensile Strength and Fatigue Crack Growth Behavior of Ti-6Al-6V-2Sn Laser Welds", *Materials Transactions*, 50(7), 2009, 1785-1791. (2009)
20. C. L. Lai, L.W. Tsay, W. Kai, and **C. Chen**, "Notched Tensile Tests of Cold-Rolled 304L Stainless Steel in 40 wt% 80°C MgCl₂ solution", *Corrosion Science*, 51, 2009, P. 380-386. (2009)
21. L.W. Tsay, Y. C. Jiang and **C. Chen**, "The Effect of Preheating on Notched Fracture of Ti-4.5Al-3V-2Mo-2Fe Laser Welds", *Materials Transactions*, 50(10), 2009, 2396-2402. (2009)
22. L.W. Tsay, Y.S. Ding, W.C. Chung and **C. Chen**, "Notched Tensile Strength of SP-700 Laser Welds", *Materials Letters*, 62, PP. 1114-1117. (2008)
23. S.S. Chang, H.C. Wu, and **C. Chen**, "Impact Wear Resistance of Stellite 6 Hardfaced Valve Seats with Laser Cladding", *Materials and Manufacturing Processes*, 23, 708-713. (2008)
24. W.C. Chung, L.W. Tsay, Y.S. Ding, and **C. Chen**, "Influence of Microstructure on the Notched Tensile Strength of Ti-4.5Al-3V-2Fe-2Mo Alloy", *Materials Transactions*, 49, 2190-2195. (2008)
25. L. W. Tsay, H. L. Lu and **C. Chen**, "The Effect of Grain Size and Aging on Hydrogen Embrittlement of a Maraging Steel", *Corrosion Science*, 50, 2506-2511. (2008)

Non-SCI Papers

1. Wei-Chih Chung, Leu-Wen Tsay and **Chun Chen**, "A study of temper bead technique on A508 steel welds", *Advanced Materials Research*, 295-297, 1938-1942. (2011).
2. C. C. Lin, R. K. Shiue, H. J. Shy and **C. Chen**, "Vacuum Brazing Porous W and Mo Using Ti-Ni-Nb Braze Alloys", *Advanced Materials Research*, (Special issue: 20th International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX), December 15-18, 2011, Hong Kong). (2011).
3. W. S. Wang, S. S. Lian, **C. Chen**, K. C. Tsai, W. J. Shong and R. Y. Lee, "Improving the Oxidation Resistance of Fe-Cr-Mn Interconnector of Solid Oxide

- Electrolyte Fuel Cell with the Addition of Trace Elements", *Advanced in Science and Technology*, 72, 243-248. (2010)
4. L.W. Tsay, C. X. Lee, W. C. Chung and **C. Chen**, "The Influence of Aging Treatments on the Notched Tensile Strength of Ti-6Al-6V-2Sn Laser Welds", *Advanced Materials Research*, Vol. 47-50, 185-188. (2008)
 5. **C. Chen**, H.C. Wu, and M. F. Chiang, "Laser Cladding in Repair of IN-738 Turbine Blades", *International Heat Treatment and Surface Engineering*, Vol. 2, No. 3/4, 140-146. (2008)
 6. D.K. Wang, H.C. Wu, R.K. Shiue, and **C. Chen**, "Vacuum Repair Brazing of the Inconel 939 Superalloy", *Advanced Materials Research*, 51, 71-78. (2008)

International Conference Papers

1. M. M. Alelyani, S.L.I. Chan, L.W. Chien and **C. Chen**, "Monitoring the Hydrogen Embrittlement of Dissimilar Metal Welds", *16th Asian Pacific Corrosion Control Conference*, Kaohsiung, Taiwan, Oct. 21 - 24, 2012. (2012)
2. Ying-Kai Chou, Leu-Wen Tsay and **Chun Chen**, "Duplex Aging of Ti-15V-3Cr-3Sn-3Al Alloy", *The 2012 World Congress on Advances in Civil, Environmental, and Materials Research (ACEM' 12)*, Seoul, Korea, August 26-30. (2012)
3. C. C. Lin, R.K. Shiue, H. J. Shy, C.S. Chang and **C. Chen**, "Vacuum Brazing Porous W and Mo Using Ti-Ni-Nb Braze Alloys", *20th International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX)*, Hong Kong, Dec. 15-18. (2011)
4. L.W. Tsay and **C. Chen**, "The effect of Austenite Stability on Fatigue Crack Growth Characteristics of Stainless Steel in Gaseous Hydrogen", *The Sixth Conference of Across-Strait Region on Engineering Materials*, Nanjing, China, (2011/11)
5. C. C. Lin, R. K. Shiue, H. J. Shy and **C. Chen**, "High-temperature Brazing Porous W", *IUMRS-ICA 2011, 12th International Conference in Asia*, Taipei World Trade Center, Taiwan. (2011/9/19-22)
6. C. C. Lin, C. H. Lee, R. K. Shiue, H. J. Shy and **C. Chen**, "High-Temperature Brazing Porous W", *IUMRS-ICA2011, 12 th International Conference in Asia*, Taipei World Trade Center, Taiwan. (2011/9/19-22)
7. C. C. Lin, C. H. Lee, R. K. Shiue, H. J. Shy and **C. Chen**, "Brazing Porous W Using Pd and Ti Foils", *The 2nd International Conference on Green Technologies (ICGT 2011)*, Pingtung, Taiwan. (2011/10/12-15)

8. W. C. Chung, L. W. Tsay and **C. Chen**, "A study of temper bead technique on A508 steel welds", *The 2011 International Conference on Advanced Engineering Materials and Technology*, Sanya, China, July 29-31. (2011)
9. Y. S. Ding, Y. C. Wu, L. W. Tsay and **C. Chen**, "Notched Tensile Fracture of Ti-15V-3Cr-3Sn-3Al Alloy", *4th International Conference on Thermal Process Modeling and Computer Simulation (ICTPMCS)*, Shanghai, China, May 31-June 2 (2010)
10. W. S. Wang, S. S. Lian, **C. Chen**, K. C. Tsai, W. J. Shong and R. Y. Lee, "Improving the Oxidation Resistance of Fe-Cr-Mn Interconnector of Solid Oxide Electrolyte Fuel Cell with the Addition of Trace Elements", *CIMTEC – Fifth Forum on New Materials*, Montecatini Terme, Italy, June 13-18. (2010)
11. 賴建霖、蔡履文、**陳鈞**, "冷加工與測試溫度對 304L 不銹鋼氫脆敏感性之研究", 第七屆海峽兩岸腐蝕與防護研討會, 昆明市, 中國, 2010 年 8 月。
12. W. C. Chung, L. W. Tsay and **C. Chen**, "Solidification Cracking Susceptibility of Alloy 52 Weld Overlay on Type 316L Stainless Steel", *The 6th International Conference on Physical and Numerical Simulation (ICPNS'2010)*, Guilin, China, Nov. 16-19 (2010)
13. L. W. Tsay, C. L. Hsu, and **C. Chen**, "Notched Tensile Fracture of Ti-4.5Al-3V-2Fe-2Mo Welds at Elevated temperatures", *International Conference of IIW*, Singapore, July 16-17. (2009)
14. L. W. Tsay, Y.C. Jiang, and **C. Chen**, "The Effect of Preheating on Notched Tensile Fracture of SP-700 Laser Welds", *International Conference of IIW*, Singapore, July 16-17. (2009)
15. H. H. Chang, C. K. Hsieh, L.W. Tsay and **C. Chen**, "The Influence of Surface Oxide Films on Laser Welding of High Strength Steel", *12th Nordic Conference in Laser Processing of Materials*, Copenhagen, Denmark, Aug. 24-26 (2009)
16. S.S. Chang, H.C. Wu, and **C. Chen**, "Impact Wear Resistance of Laser-Clad Valve Seats with Stellite 6 Alloy", *Second International Conference on Heat Treatment and Surface Engineering of Tools and Dies*, Bled, Slovenia, (2008/5)
17. C.L. Lai, C.L. Liu, L.W. Tsay, and **C. Chen**, "Laser Welding of 2507 Duplex Stainless Steel with Austenite-Stabilizer additions", *The Forth Conference of Across-Strait Region on Engineering Materials*, Naning, (Guangxi Province,) China, (2008/9)

Domestic Conference Papers

1. 鍾偉志、蔡岳軒、黃俊源、楊明宗、蔡履文、**陳鈞**, "壓力槽低合金鋼異材銲件之高溫水環路腐蝕疲勞特性研究", 101 年度「行政院原子能委員會委

- 託研究計畫暨國科會與原能會科技學術合作研究計畫成果發表會」，2012年12月18日。(2012)
2. 黃彥呈、于傑、蔡履文、**陳鈞**,"溫度效應對 301 不銹鋼及其雷射銲件之氫脆敏感性研究",中國材料科學學會 101 年年會論文,論文編號 P09-745,2012年11月。(2012)
 3. 蔡岳軒、薛人愷、郭榮卿、蔡履文、**陳鈞**,"A508/Alloy 52/SS316L 異材金屬銲件之高溫腐蝕疲勞特性研究",100 年度「行政院原子能委員會委託研究計畫暨國科會與原能會科技學術合作研究計畫成果發表會」,2011年12月16日。(2011)
 4. 林家正、薛人愷、施修正、**陳鈞**,"難熔金屬高溫硬銲研究",100 年度「國防科技學術合作研究計畫成果發表會」,桃園龍潭,2011年11月17日。(2011)
 5. 賴建霖、蔡履文、**陳鈞**,"冷加工與測試溫度對 304L 不銹鋼氫脆敏感性之研究",第七屆海峽兩岸腐蝕與防護研討會,昆明市,中國,2010年8月。
 6. 賴建霖、蔡履文、**陳鈞**,"304L 不銹鋼氫脆之溫度效應",中華民國防蝕工程學會 99 年年會論文,論文編號 B01,台南縣、台灣,2010年9月。
 7. 鍾偉志、蔡履文、郭榮卿、**陳鈞**,"銲接參數對異質金屬銲件之應力腐蝕及腐蝕疲勞特性探討",99 年度「行政院原子能委員會委託研究計畫暨國科會與原能會科技學術合作研究計畫成果發表會」,2010年12月15日。
 8. 賴建霖、蔡履文、**陳鈞**,"冷加工與敏化對 304L 不銹鋼應力腐蝕性質之影響",中華民國防蝕工程學會 98 年年會論文,論文編號 P.B01,2009年8月。(2009)
 9. 江銘峰、吳憲政、**陳鈞**,"IN-738 鎳基超合金葉片之之高溫雷射銲補研究",中國材料科學學會 98 年年會論文,論文編號 09-0409,2009年11月。(2009)
 10. 江銘峰、吳憲政、薛人愷、**陳鈞**,"IN-738 鎳基超合金 FIC 處理與硬銲修補之研究",中國材料科學學會 98 年年會論文,論文編號 09-0400,2009年11月。(2009)
 11. 鍾偉志、林孟賢、蔡履文、**陳鈞**,"SP-700 鈦合金麻田散體相變態及其時效研究",中國材料科學學會 97 年年會論文,論文編號 P08-045,2008年11月(2008)。

Reports

1. 鍾偉志、蔡岳軒、黃俊源、楊明宗、蔡履文、**陳鈞**,"壓力槽低合金鋼異材銲件之高溫水環路腐蝕疲勞特性研究",國科會與原能會科技學術合作專題研究完整報告,101-NU-E-002-001-NU。(2012/12)
2. **陳鈞**,"轉子及氣渦輪機材料複製膜之之 TEM 與 STEM 微結構觀察及 EPMA 微成份分析--台中電廠#2 與南部電廠#3 機",台大工業研究中心報告。(2012/11).

3. 陳鈞, "轉子及氣渦輪機材料複製膜之之 TEM 與 STEM 微結構觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2011/11).
4. 陳鈞, "巴氏合金室溫之氫脆敏感性測試及缺口拉伸試片破斷面 SEM 分析", 台大工業研究中心報告。(2011/7).
5. 鍾偉志、蔡履文、陳鈞 "銲接參數對異質金屬銲件之應力腐蝕及腐蝕疲勞特性探討", 國科會與原能會科技學術合作專題研究完整報告, 99-NU-E-002-001。(2011/2)
6. 陳鈞、江銘峰, "IN-738 鎳基超合金之高溫雷射銲接與銲補製程研發" 國科會專題研究報告 NSC96-2221-E-002-148-MY3, 三年期結案完整報告。(2010/10)
7. 陳鈞 "轉子及氣渦輪機材料複製膜之之 TEM 與 STEM 微結構觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2010/12)
8. 陳鈞、林孟賢, "高壓冷噴銲試片之高解像 SEM 金相組織觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2009/12)
9. 陳鈞, "台中# 1 與通霄# 5 機汽機轉子材料複製膜之 TEM 與 STEM 微結構觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2009/12)
10. 鍾偉志、蔡履文、郭榮卿、陳鈞, "A508-316L 異質金屬銲件及其性能研究", 國科會與原能會科技學術合作專題研究完整報告, 98-NU-E-002-001。(2009/12)
11. 陳鈞, "興達# 3 汽機轉子與南部電廠# 3-1 氣渦輪機材料複製膜之 TEM 與 STEM 微結構觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2008/10)
12. 陳鈞、林孟賢, "501F 銲件及二次再生材料之 TEM 與高解像 SEM 金相組織觀察及 EPMA 微成份分析", 台大工業研究中心報告。(2008/12)

Patents

1. 陳鈞、吳憲政、楊子青, "17-4 PH 不銹鋼葉片導引端之雷射噴覆抗沖蝕處方方法", 中華民國發明專利, 發明第 093124601 號, 95/4/21 - 113/8/16。
2. 陳鈞、吳憲政, "多功能同軸式雷射噴嘴", 中華民國專利, 發明第 093133194 號, 95/4/11 - 113/10/31。
3. 陳鈞、蔡履文, "雷射銲接車用鍍鋅鋼板之改良製程", 中華民國專利, 發明第 115590 號, 89/06/01 - 107/03/16。
4. 陳鈞、蔡履文、李遠明、許武強、張國榮, "滾珠螺桿肩環之加工方法改良", 中華民國專利, 發明第 093761 號, 87/04/01 - 105//04/23。
5. 陳鈞、韋文誠、張凱傑, "Laser Remelting Process for Plasma-Sprayed Zirconia Coating", U.S. Patent: 5576069, 85/11/19 - 103/11/27。
6. 陳鈞、蔡履文、莊運清, "應用雷射於裁刀刀尖之硬化及回火製程", 中華民國專利, 發明第 073814 號, 84/07/01 - 103/5/27。

7. 陳鈞、韋孟育, "抑制金屬構件疲勞破壞之雷射局部加熱方法", 中華民國專利, 發明第 072230 號, 84/07/01 - 103/11/27。
8. 蔡履文、陳鈞、連漢彬, "有縫包藥鐸線之雷射表面熔封製程", 中華民國專利, 發明第 69027 號, 83/10/11 - 102/9/20。
9. 陳鈞、韋文誠、張凱傑, "電漿噴塗氧化鋁塗層之雷射二次重熔處理", 中華民國專利, 發明第 68773 號, 83/10/21 - 102/9/24。