

機電整合研究所 Institute of Mechatronic Engineering

金屬接合、微結構設計、複
層材料製造、金屬積層製造

Metallic bonding, Microstructure
analysis & design, Manufacture of
lamellar materials, Metal additive
manufacturing

先進界面製造實驗室 Advanced Interface Manufacture Lab.



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<https://sites.google.com/view/aiml2021/home>

■ 研究領域

- 固態超音波金屬接合
- 高強度金屬複合結構製造
- 異質界面微結構分析設計
- 金屬積層製造

■ Research Area

- Solid-state ultrasonic welding
- High strength multi-material structure fabrication
- Interfacial microstructure analysis & design
- Metal additive manufacturing

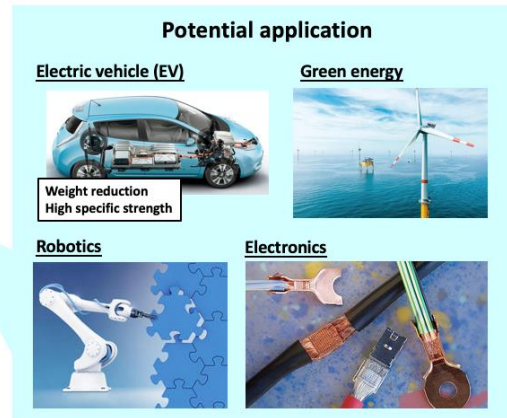
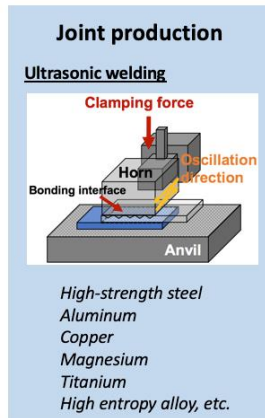
■ 近期研究主題

- 高強度鋼/輕合金焊接
- 異質界面形成機制解析
- 界面形變相變與機械性能之關聯性探討
- 異質金屬接合用中間層探索
- 高熵合金焊接性探討

■ Recent Topics

- Steel/lightweight alloy welding
- Insights of interface formation mechanism
- Correlation of interface deformation/phase transformation and mechanical performance
- Exploration of interlayer for dissimilar metal joints
- Weldability investigation of high-entropy alloys

Joint manufacture of similar/dissimilar metals using solid-state (friction) welding



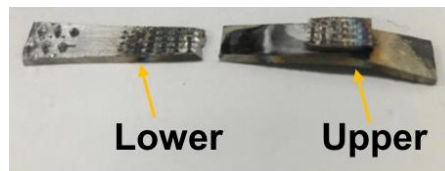
USW 特點：

焊接前後微結構變化少
變形程度低
快速/低溫接合
適用於異質材料接合

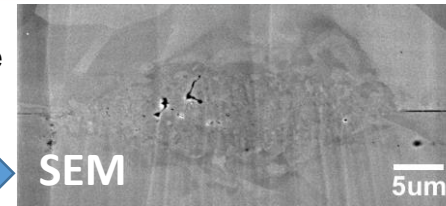
Features of USW:
Less microstructure change
Low deformation
Rapid / low temperature
Dissimilar joints available

強度/微結構關聯性探討

Correlation of strength & microstructure



接合製造 / 機械性質測試
Joint production & mechanical test



界面微結構分析
Interfacial microstructure analysis

