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1981 11

" " 2014

2004 2009

2009 2013

(Australian Research Council Postdoctoral Researcher Fellowship, ARC-APD) 2014

(Australian Research Council Discovery Early Career Researcher Award, ARC DECRA)

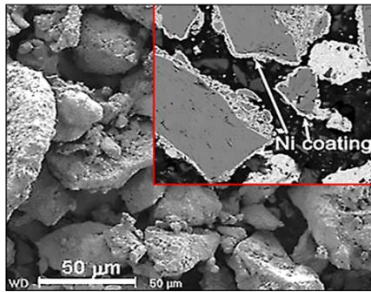
" " 2015

3D

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2

常规机械混合粉体



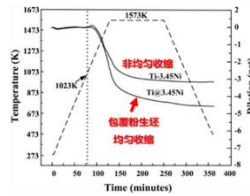
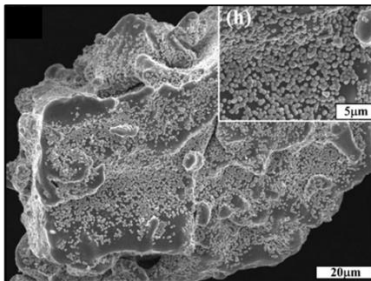
粉体混合不均匀
 烧结时不均匀收缩

汽车减震器烧结制品严重变形



开发新型粉体包覆技术，解决复杂形状制品精确控形难问题

均匀包覆粉体



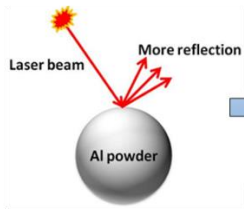
- 成分均匀稳定
- 烧结时均匀收缩

包覆粉体的烧结制品成型精度高、不变形

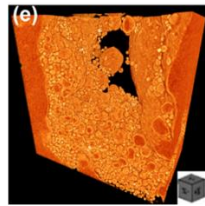


难题① 高激光反射率粉体打印难

铝、铜等激光反射率高

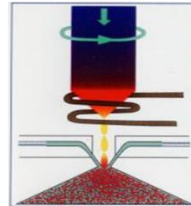


未熔粉、大缺陷

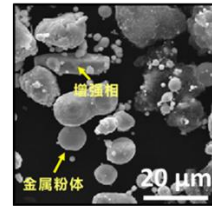


难题② 无3D打印复合材料技术

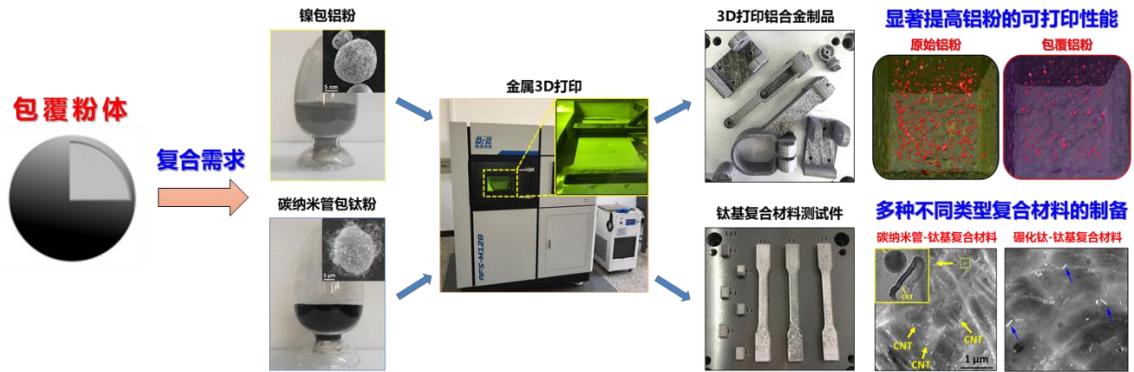
传统打印粉体制备技术



复合粉体无法制备



采用粉体包覆技术解决复合粉体制备问题、提高粉体可打印性能



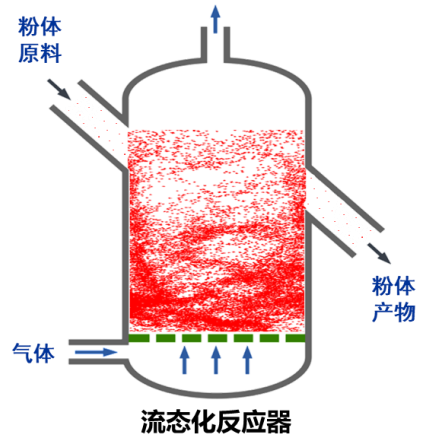
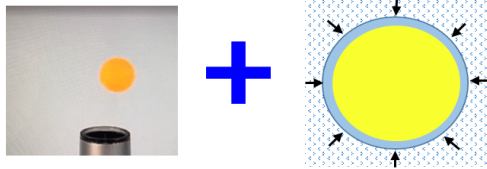
3D

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3D

技术原理创新

悬浮滚动 (球形度) 化学气相沉积 (包覆)

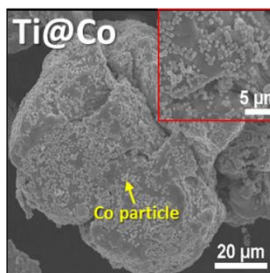


特色

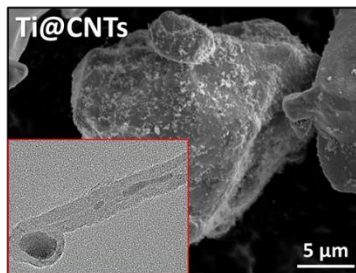
- ✓ 颗粒悬浮滚动 (横向) : 颗粒表面完全暴露
- ✓ 颗粒往复流动 (纵向) : 颗粒充分发生反应

开发50余种改性粉体

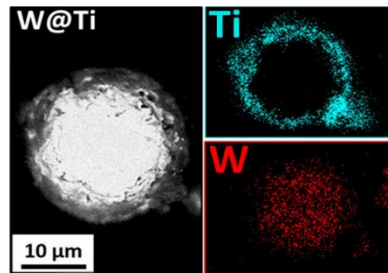
钴包覆钛粉



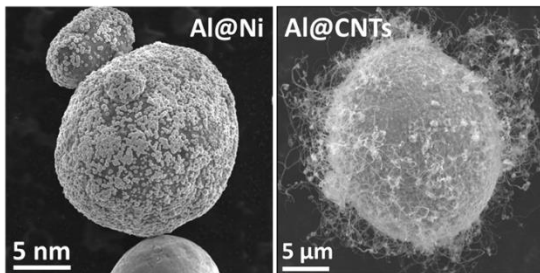
碳纳米管包覆钛粉



钛包覆钨粉



金属包覆铝粉



金属包覆硬质合金粉

