

金属学报

ACTA METALLURGICA SINICA

金属增材制造材料设计专刊



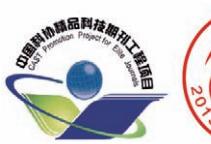
中国金属学会主办

ACTA METALL.SIN.(JINSHU XUEBAO), Vol.59, No.1, pp.1—190, January 2023

第59卷 第1期

Vol.59 No.1

2023



金属学报

JINSHU XUEBAO

第 59 卷

第 1 期

2023 年 1 月 11 日

金属增材制造材料设计专刊

目 次

金属增材制造材料设计专刊前言	宋 波	(I)
综 述		
金属激光增材制造材料设计研究进展		
选区激光熔化 γ 相强化镍基高温合金裂纹形成机理与抗裂纹设计研究进展	宋 波 张金良 章媛洁 胡 凯 方儒轩 姜 鑫 张莘茹 吴祖胜 史玉升	(1)
镁合金选区激光熔化增材制造技术研究现状与展望	祝国梁 孔德成 周文哲 贺 戕 董安平 疏 达 孙宝德	(16)
选区激光熔化 NiTi 形状记忆合金研究进展	彭立明 邓庆琛 吴玉娟 付彭怀 刘子翼 武千业 陈 凯 丁文江	(31)
基于高通量制备的增材制造材料成分设计	杨 超 卢海洲 马宏伟 张百成 张文龙 曲选辉	(55)
计算辅助高性能增材制造铝合金开发的研究现状与展望		(75)
搅拌摩擦增材制造技术研究进展	高建宝 李志诚 刘 佳 张金良 宋 波 张利军	(87)
搅拌摩擦增材制造技术研究进展	李会朝 王彩妹 张 华 张建军 何 鹏 邵明皓 朱晓腾 傅一钦	(106)
研究论文		
激光热力交互增材制造 Ti6Al4V 合金的组织及力学性能	卢海飞 吕继铭 罗开玉 鲁金忠	(125)
激光摆动对激光熔化沉积钛合金微观组织及力学性能的影响	方远志 戴国庆 郭艳华 孙中刚 刘红兵 袁秦峰	(136)
粉末粒径对 AlSi10Mg 合金选区激光熔化成形的影响	王 孟 杨永强 Vyacheslav Trofimov 宋长辉 周瀚翔 王 迪	(147)
电弧熔丝增材制造 2Cr13 合金组织与性能各向异性行为	葛进国 卢 照 何思亮 孙 妍 殷 硕	(157)
原位自生 2%TiB ₂ 颗粒对 2024Al 增材制造合金组织和力学性能的影响	孙腾腾 王洪泽 吴 一 汪明亮 王浩伟	(169)
原位激光定向能量沉积 NiTi 形状记忆合金的微观结构和力学性能	陈 斐 邱鹏程 刘 洋 孙兵兵 赵海生 沈 强	(180)

本期执行主编: 宋 波

Special Issue for Materials Design for Metal Laser Additive Manufacturing

C O N T E N T S

Preword of Special Issue for Materials Design for Metal Laser Additive Manufacturing(I)
SONG Bo

Overview

Research Progress of Materials Design for Metal Laser Additive Manufacturing(1)
SONG Bo, ZHANG Jinliang, ZHANG Yuanjie, HU Kai, FANG Ruxuan, JIANG Xin, ZHANG Xinru,
WU Zusheng, SHI Yusheng

Research Progress on the Crack Formation Mechanism and Cracking-Free Design of γ' Phase Strengthened Nickel-Based Superalloys Fabricated by Selective Laser Melting(16)
ZHU Guoliang, KONG Decheng, ZHOU Wenzhe, HE Jian, DONG Anping, SHU Da, SUN Baode

Additive Manufacturing of Magnesium Alloys by Selective Laser Melting Technology: A Review(31)
PENG Liming, DENG Qingchen, WU Yujuan, FU Penghuai, LIU Ziyi, WU Qianye, CHEN Kai, DING Wenjiang

Research and Development in NiTi Shape Memory Alloys Fabricated by Selective Laser Melting(55)
YANG Chao, LU Haizhou, MA Hongwei, CAI Weisi

Composition Design of Additive Manufacturing Materials Based on High Throughput Preparation(75)
ZHANG Baicheng, ZHANG Wenlong, QU Xuanhui

Current Situation and Prospect of Computationally Assisted Design in High-Performance Additive Manufactured Aluminum Alloys: A Review(87)
GAO Jianbao, LI Zhicheng, LIU Jia, ZHANG Jinliang, SONG Bo, ZHANG Lijun

Research Progress of Friction Stir Additive Manufacturing Technology(106)
LI Huizhao, WANG Caimei, ZHANG Hua, ZHANG Jianjun, HE Peng, SHAO Minghao, ZHU Xiaoteng, FU Yiqin

Research paper

Microstructure and Mechanical Properties of Ti6Al4V Alloy by Laser Integrated Additive Manufacturing with Alternately Thermal/Mechanical Effects(125)
LU Haifei, LV Jiming, LUO Kaiyu, LU Jinzhong

Effect of Laser Oscillation on the Microstructure and Mechanical Properties of Laser Melting Deposition Titanium Alloys(136)
FANG Yuanzhi, DAI Guoqing, GUO Yanhua, SUN Zhonggang, LIU Hongbing, YUAN Qinfeng

Effects of Particle Size on Processability of AISi10Mg Alloy Manufactured by Selective Laser Melting(147)
WANG Meng, YANG Yongqiang, Vyacheslav Trofimov, SONG Changhui, ZHOU Hanxiang, WANG Di

Anisotropy in Microstructures and Mechanical Properties of 2Cr13 Alloy Produced by Wire Arc Additive Manufacturing(157)
GE Jinguo, LU Zhao, HE Siliang, SUN Yan, YIN Shuo

Effect of In Situ 2%TiB₂ Particles on Microstructure and Mechanical Properties of 2024Al Additive Manufacturing Alloy(169)
SUN Tengteng, WANG Hongze, WU Yi, WANG Mingliang, WANG Haowei

Microstructure and Mechanical Properties of NiTi Shape Memory Alloys by In Situ Laser Directed Energy Deposition(180)
CHEN Fei, QIU Pengcheng, LIU Yang, SUN Bingbing, ZHAO Haisheng, SHEN Qiang