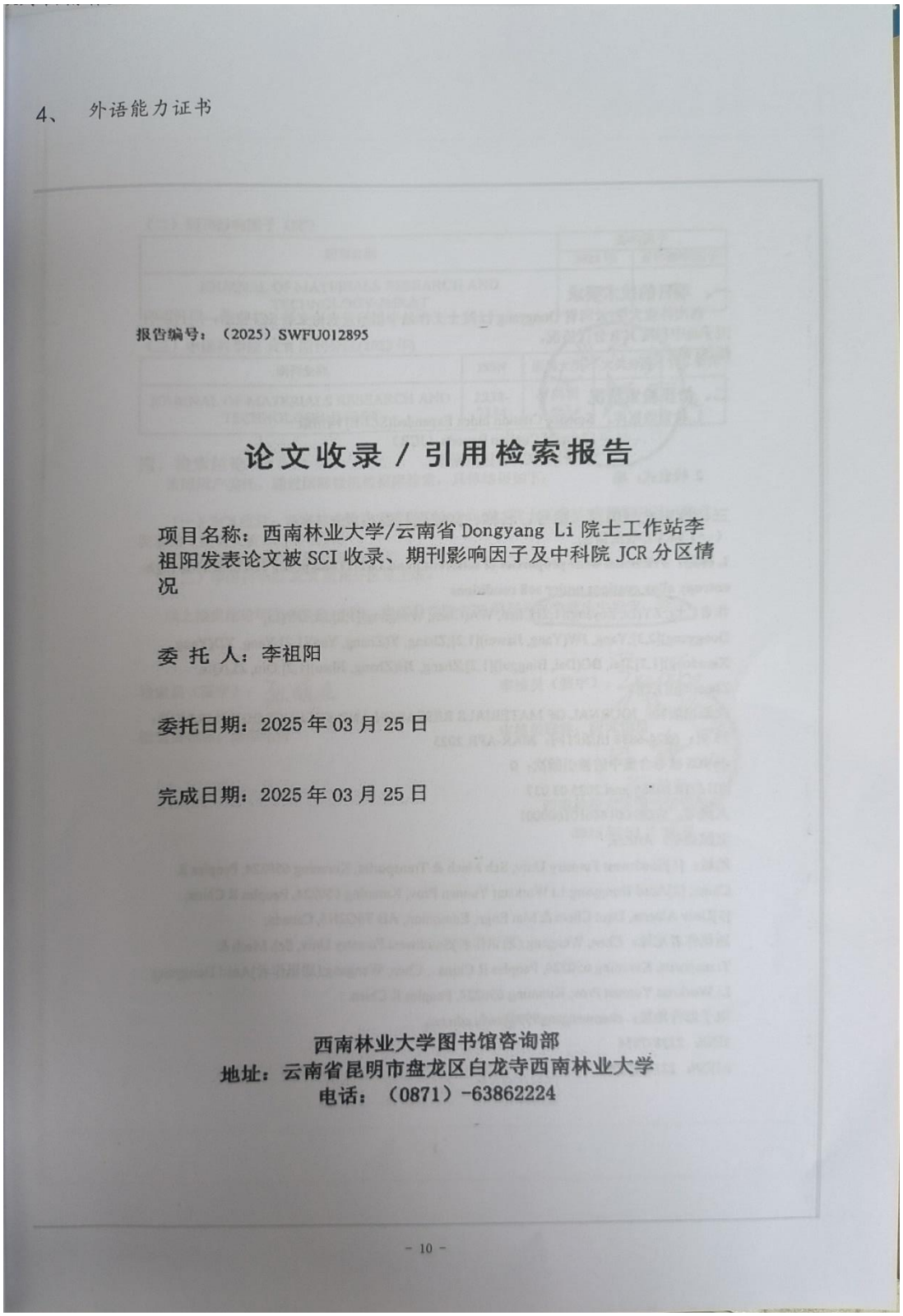
外语能力：



4、 外语能力证书

报告编号：（2025）SWFU012895

论文收录 / 引用检索报告

项目名称：西南林业大学/云南省 Dongyang Li 院士工作站李祖阳发表论文被 SCI 收录、期刊影响因子及中科院 JCR 分区情况

委 托 人：李祖阳

委托日期：2025 年 03 月 25 日

完成日期：2025 年 03 月 25 日

西南林业大学图书馆咨询部
地址：云南省昆明市盘龙区白龙寺西南林业大学
电话：（0871）-63862224

一、项目的技术要求

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标题：略

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   Journal Citation Reports（JCR）
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2. 检索式：略

三、检出文献情况（编号、名称、文献题目及出处）

（一）SCI-E 收录情况

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作者：Li, ZY(Li, Zuyang)[1,2];Chen, WA(Chen, Wengang)[1,2];Li, DY(Li, Dongyang)[2,3];Yang, JW(Yang, Jiawei)[1,2];Zhang, Y(Zhang, Yao)[1,2];Yang, XD(Yang, Xiaodong)[1,2];Dai, BG(Dai, Binggui)[1,2];Zhang, JH(Zhang, Jihao)[1,2];Qiu, ZL(Qiu, Zhaoling)[1,2];

来源出版物：JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T 卷：35 页：6874-6888 出版时间：MAR-APR 2025

在 WOS 核心合集中的被引频次：0

DOI：10.1016/j.jmrt.2025.03.037

入藏号：WOS:001446101600001

文献类型：Article;

地址：[1]Southwest Forestry Univ, Sch Mech & Transportat, Kunming 650224, Peoples R China; [2]Acad Dongyang Li Workstat Yunnan Prov, Kunming 650224, Peoples R China; [3]Univ Alberta, Dept Chem & Mat Engn, Edmonton, AB T6G2H5, Canada;

通讯作者地址：Chen, Wengang;(通讯作者)Southwest Forestry Univ, Sch Mech & Transportat, Kunming 650224, Peoples R China ; Chen, Wengang;(通讯作者)Acad Dongyang Li Workstat Yunnan Prov, Kunming 650224, Peoples R China. ;

电子邮件地址：chenwengang999@swfu.edu.cn,

ISSN：2238-7854

eISSN：2214-0697

（二）期刊影响因子（IF）

期刊名称	影响因子	
	2023 年	五年影响因子
JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T	6.2	6.3

（三）中国科学院 JCR 期刊分区(2023 年)

期刊全称	ISSN	所属大类	大类分区	Top 期刊
JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T	2238-7854	材料科学	2	是

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（三）中国科学院 JCR 期刊分区见上表。

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2025 年 03 月 25 日

学术能力：

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检索员职称：助理馆员　　审核员职称：研究馆员

西南林业大学图书馆咨询部

2025 年 03 月 25 日

Journal of Materials Research and Technology 35 (2025) 6874–6888

Contents lists available at ScienceDirect

Journal of Materials Research and Technology

journal homepage: www.elsevier.com/locate/jmrt

Frictional wear properties of different nano La_2O_3 composite FeCoNiCrMo high-entropy alloy coatings under soil conditions

Zuyang Li [a,b], Wengang Chen [a,b,*], Dongyang Li [b,c], Jiawei Yang [a,b], Yao Zhang [a,b], Xiaodong Yang [a,b], Binggui Dai [a,b], Jihao Zhang [a,b], Zhaoling Qiu [a,b]

[a] School of Mechanical and Transportation, Southwest Forestry University, Kunming, 650224, China
[b] Academician Dongyang Li Workstation in Yunnan Province, Kunming, 650224, China
[c] Department of Chemical and Materials Engineering, University of Alberta, T6G2H5, Canada

ARTICLE INFO

Keywords:
High entropy alloys
Rare earth
Earth-touching machine tools
Laser cladding

ABSTRACT

In order to mitigate the problem of wear during the working process of earth-touching implements, in this study, nano La_2O_3-doped HEA (FeCoNiCrMo) coatings with different dopant contents were fabricated on the surface of 65Mn steel by laser cladding technology. Effects of the coatings on tribological properties of 65Mn steel were investigated in both dry ambient and dry soil environments. The microstructure, chemical composition, hardness, and tribological properties of the wear-resistant La_2O_3-doped composite coatings were evaluated. Results of the study show that La_2O_3 can reduce the incidence of pores in HEA coatings. La_2O_3 can effectively increase the hardness and wear resistance of the coatings, but too much La_2O_3 may negatively affect the hardness of the coatings and thus their wear resistance. In dry friction and soil environments, coatings at 0.8% consistently show the lowest wear and the best abrasion resistance properties. In soil environments, the modes are mainly oxidative and adhesive wear, and soil particles act as a buffer medium to greatly reduce the amount of wear.

1. Introduction

Agricultural earth-touching implements are very important tools in agricultural activities and commonly used for operations, e.g., loosening soil and tilling. The soil contact machinery often comes into contact with abrasive materials in the soil, such as gravel, residual roots, stones, etc., resulting in unavoidable wear and tear. Wear and tear are the main causes of failure and obsolescence of most agricultural soil-touching implements, which lead to an increase in maintenance costs and decreases in agricultural efficiency [1–3]. Thus, improving the tribological performance of agricultural earth-touching implements is of significance for agricultural production activities [4].

The preparation of wear-resistant coatings on metal surfaces is currently an effective method to improve the wear resistance of materials [5–7]. Commonly used methods for the preparation of coatings include physical vapor deposition [8], thermal spraying [9,10], and laser cladding [11]. Compared with other surface modification techniques, laser cladding has the advantages of high bonding strength between the prepared coating and the substrate and low porosity, so it is widely used to prepare wear-resistant coatings [12]. Some scholars have used laser cladding technology to prepare hard coatings on metal surfaces, all of which can improve the wear resistance of materials [13,14]. Peiyao Jing et al. [15] prepared Ni35/WC coatings with varying Ti contents on the surface of 65Mn steel using laser cladding technology. The results indicated that the microhardness distribution of the Ti-added coatings became more uniform, exhibiting fewer micro defects and enhanced wear resistance. Hu M et al. [16] fabricated WC-12Co coatings on the surface of stainless steel 304 through laser cladding technology. The findings demonstrated that due to their dense and homogeneous microstructure, these coatings exhibited high microhardness and excellent wear resistance. Z. Tian et al. [17] developed Inconel 625-WC coatings on 2Cr13 surfaces, investigating their hardness and corrosion resistance properties. It was found that the average hardness of the composite coating reached its peak when the WC content was at 20 wt%, while optimal corrosion resistance was observed at a WC content of 10 wt%. Based on these research outcomes, it is evident that laser cladding technology can be applied across a broader range of material systems, resulting in superior coating quality.

High entropy alloy (HEA) is a new type of alloy system with five or more elements as the main components and the concentration of each

* Corresponding author.
E-mail address: chenwengang999@swfu.edu.cn (W. Chen).

https://doi.org/10.1016/j.jmrt.2025.03.037
Received 31 July 2024; Received in revised form 3 March 2025; Accepted 4 March 2025
Available online 6 March 2025
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第45卷 第11期
2024年 11月
材 料 热 处 理 学 报
TRANSACTIONS OF MATERIALS AND HEAT TREATMENT
Vol. 45 No. 11
November 2024
DOI: 10.13289/j.issn.1009-6264.2024-0005

农业触土机具材料表面涂层减阻抗磨特性研究进展

李祖阳[1,2]，陈文刚[1,2]，张 垚[1,2]，代炳贵[1,2]，张继豪[1,2]，
杨晓东[1,2]，杨加威[1,2]
(1.西南林业大学机械与交通学院，云南 昆明 650224；2.云南省 Dongyang Li 院士工作站，
云南 昆明 650224)

摘 要：农业触土机具表面的减阻性能和耐磨特性决定了其自身的工作寿命和能耗，通过表面改性技术在触土机具表面制备高硬耐磨涂层可以有效地提高触土机具的减阻抗磨性能，降低农业机械能源消耗。本文介绍了农业触土部件的磨损因素及触土机具的表面磨损机理，从不同表面改性技术的角度总结了农业触土机具常用材料表面涂层减阻抗磨的研究进展，对复合材料改性涂层缺陷的研究成果进行了归纳，并对农业触土机具材料表面涂层的未来发展进行了展望。

关键词：触土机具；涂层技术；减阻抗磨；热处理
中图分类号：TG174.44 **文献标志码**：A **文章编号**：1009-6264(2024)11-0024-13

Research progress on resistance reduction and anti-wear characteristics of surface coatings on agricultural soil-touching implement materials

LI Zu-yang[1,2], CHEN Wen-gang[1,2], ZHANG Yao[1,2], DAI Bing-gui[1,2], ZHANG Ji-hao[1,2], YANG Xiao-dong[1,2], YANG Jia-wei[1,2]
(1.Mechanical Engineering and Transportation, Southwest Forestry University College, Kunming 650224, China; 2.Academician Dongyang Li Workstation in Yunnan Province, Kunming 650224, China)

Abstract: The resistance reduction performance and wear resistance characteristics of the surface of agricultural soil-touching implements determine their own working life and energy consumption. By using surface modification technology to prepare high hardness and wear-resistant coatings on the surface of soil-touching implements, the resistance reduction and wear resistance performance of soil touching implements can be effectively improved, and the energy consumption of agricultural machinery can be reduced. This article introduces the wear factors of agricultural soil-touching components and the surface wear mechanism of soil-touching equipment, summarizes the research progress on surface coating for reducing resistance and anti-wear of commonly used materials for agricultural soil-touching machinery from the perspective of different surface modification technologies, the research results of composite material modified coatings defects are summarized, and the future development of surface coatings for agricultural soil-touching equipment materials is discussed.

Keywords: earth-touching machine; coating technology; impedance reducing mill; heat treatment

随着我国农业机械化的发展，农业活动水平逐步提高，对农业机械的零部件，尤其是农业触土机具的可靠性及使用寿命有了更高标准。在土壤耕作过程中，农具的工作部件会受到土壤颗粒、沙砾、作物根茎等磨料的作用而产生磨损，如深松、犁耕、中耕、齿耙以及除草等活动。磨损是决定土壤接触工具寿命的主要因素，严重的磨损甚至导致触土部件失效或报废。从农业活动自身角度看，触土部件的磨损会降低

收稿日期：2024-01-02 修订日期：2024-01-24
基金项目：云南省农业联合专项重点项目(202301BD070001-001)；云南省农业联合专项面上项目(202101BD070001-051)；云南省 Dongyang Li 院士工作站(202305AF150019)
作者简介：李祖阳(1999—)，男，硕士研究生，主要研究方向为摩擦与磨损，E-mail: 15468981620@qq.com.
通信作者：陈文刚(1973—)，男，教授，博士，主要研究方向为机械摩擦磨损机理及控制，E-mail: chenwengang999@163.com.
引用格式：李祖阳，陈文刚，张垚，等. 农业触土机具材料表面涂层减阻抗磨特性研究进展[J]. 材料热处理学报，2024，45(11)：24-36.
LI Zu-yang, CHEN Wen-gang, ZHANG Yao, et al.Research progress on resistance reduction and anti-wear characteristics of surface coatings on agricultural soil-touching implement materials[J]. Transactions of Materials and Heat Treatment, 2024, 45(11): 24-36.

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