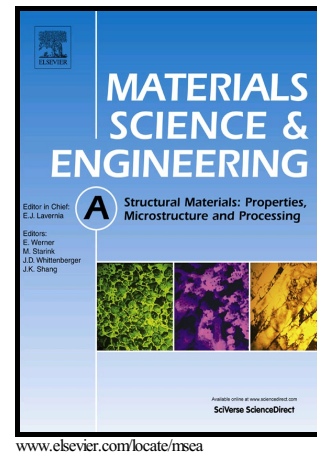


Author's Accepted Manuscript

Investigation on mechanical properties and microstructural evolution of TC6 titanium alloy subjected to laser peening at cryogenic temperature

Jing Li, Jianzhong Zhou, Aixin Feng, Shu Huang, Xiankai Meng, Yunhui Sun, Yunjie Sun, Xuliang Tian, Yu Huang



PII: S0921-5093(18)31028-1
DOI: <https://doi.org/10.1016/j.msea.2018.07.093>
Reference: MSA36757

To appear in: *Materials Science & Engineering A*

Received date: 20 April 2018
Revised date: 24 July 2018
Accepted date: 25 July 2018

Cite this article as: Jing Li, Jianzhong Zhou, Aixin Feng, Shu Huang, Xiankai Meng, Yunhui Sun, Yunjie Sun, Xuliang Tian and Yu Huang, Investigation on mechanical properties and microstructural evolution of TC6 titanium alloy subjected to laser peening at cryogenic temperature, *Materials Science & Engineering A*, <https://doi.org/10.1016/j.msea.2018.07.093>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Investigation on mechanical properties and microstructural evolution of TC6 titanium alloy subjected to laser peening at cryogenic temperature

Jing Li^{a*}, Jianzhong Zhou^{a*}, Aixin Feng^{b,c}, Shu Huang^a, Xiankai Meng^a, Yunhui Sun^a, Yunjie Sun^a, Xuliang Tian^a, Yu Huang^a

^a*School of Mechanical Engineering, Jiangsu University, Zhenjiang 212013, PR China;*

^b*College of Mechanical & Electrical Engineering, Wenzhou University, Wenzhou, 325035, PR China;*

^c*Zhejiang Provincial Key Laboratory of Laser Processing Robot/ Key Laboratory of Laser Precision Processing & Detection, Wenzhou, 325035, PR China.*

ljingvip@sina.cn

zhoujz@ujs.edu.cn

*Corresponding authors. Tel.: +86-0511-8878-0219; fax: +86-0511-8878-0219.

Abstract

The aim of this study was to investigate the influence of the synergistic function of cryogenic temperature and ultrahigh strain rate deformation during the process of Cryogenic Laser Peening (CLP) on the mechanical properties and microstructural evolution of TC6 titanium alloy. The measurements of tensile properties at room and elevated temperatures, as well as micro-hardness on the cross-sectional direction were carried out. Meanwhile, the microstructural evolution was characterized by Electron backscattered diffraction (EBSD) analysis and Transmission Electron Microscopy (TEM) observation. The experimental results demonstrated that cryogenic laser peening could significantly improve the strength and ductility, as well as the stability at elevated temperature condition of TC6 titanium alloy. At the same time, cryogenic

Download English Version:

<https://daneshyari.com/en/article/7971575>

Download Persian Version:

<https://daneshyari.com/article/7971575>

[Daneshyari.com](https://daneshyari.com)