

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Artikel Ilmiah : Surface modification of TiO₂ for visible light photocatalysis: Experimental and theoretical calculations of its electronic and optical properties

Penulis Artikel Ilmiah : **Dessy Ariyanti**, Surayya Mukhtar, Nisar Ahmed, Zhuofeng Liu, Junzhe Dong, Wei Gao

Status Pengusul : Penulis utama

Identitas Jurnal Ilmiah :

- a. Nama Jurnal : International Journal of Modern Physics B
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- g. DOI artikel (Jika ada) : <https://doi.org/10.1142/S0217979220400676>
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- i. Terindeks di : SCOPUS (Q4) SJR 0,24
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a.	Kelengkapan dan Kesesuaian unsur isi artikel (10%)	4,00	4,00	4,00
b.	Ruang lingkup dan kedalaman pembahasan (30%)	10,50	11,00	10,75
c.	Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	10,50	10,00	10,25
d.	Kelengkapan unsur dan kualitas penerbit (30%)	10,50	9,00	9,75
Nilai Total = (100%)		35,50	34,00	34,75
Nilai pengusul = (0,6 x nilai total)		21,3	20,40	20,85

Penilai 1

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 Unit kerja : Teknik Kimia FT Undip

Semarang,
 Penilai 2

Prof. Dr. Ir. Hadiyanto, S.T., M.Sc., IPU
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 Unit kerja : Teknik Kimia FT Undip

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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			10,50
d. Kelengkapan unsur dan kualitas penerbit (30%)	12			10,50
Nilai Total = (100%)	40			35,50
Nilai pengusul =			60% x 35,5	21,30

KOMENTAR/ULASAN PEER REVIEW

Kelengkapan dan Kesesuaian Unsur	: Artikel ini mencakup judul, abstrak, metode percobaan, hasil dan pembahasan, kesimpulan, ucapan terima kasih dan daftar putaka.
Ruang Lingkup dan Kedalaman Pembahasan	: Isi artikel masih dalam ruang lingkup jurnal International Journal of Modern Physics B yang meliputi percobaan memodifikasi katalis TiO ₂ dan uji sifat kelistrikan dan optiknya. Hasil percobaan dibahas dengan cukup jelas dan didukung dengan pustaka yang memadai atau sekitar 59% dari pustaka yang digunakan.
Kecukupan & Kemutakhiran Data & Metodologi	: Jumlah dan kualitas data memadai untuk publikasi di jurnal internasional bereputasi. Hampir semua pustaka yang digunakan bersifat mutakhir (76,5%) dan lebih dari 67% digunakan dalam pembahasan.
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Semarang, 29 Oktober 2022

Penilai 1

Prof. Dr. Andri Cahyo Kumoro S.T., M.T.

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Unit kerja : Fakultas Teknik

Bidang Ilmu : Teknik Kimia

Jabatan/Pangkat : Guru Besar

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	40			
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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			10,0
d. Kelengkapan unsur dan kualitas penerbit (30%)	12			9,0
Nilai Total = (100%)	40			34,0
Nilai pengusul =			60% x 34	20,4

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Kelengkapan dan Kesesuaian Unsur : Kelengkapan unsur artikel sudah memenuhi, unsur sudah lengkap dari abstract, introduction, experimental details, results and discussion, conclusion dan reference. Tingkat plagiarisme sebesar 12%.

Ruang Lingkup dan Kedalaman Pembahasan : Pembahasan cukup mendalam dengan menggunakan 17 referensi yang mendukung. Artikel ini termasuk dalam ruang lingkup teknik kimia yang mengkaji modifikasi permukaan TiO₂ untuk fotokatalisis cahaya tampak.

Kecukupan & Kemutakhiran Data & Metodologi : Sumber pustaka yang digunakan bersumber dari jurnal namun terdapat 4 referensi yang lebih dari 10 tahun terakhir.

Kelengkapan Unsur dan Kualitas Penerbit : Terbitan lengkap memuat volume, nomor, tahun dan daftar isi. Jurnal internasional bereputasi terindeks SCOPUS (Q4) dengan nilai SJR 0,24

Semarang, 10 Okt 2022

Penilai 2

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Unit kerja : Fakultas Teknik

Bidang Ilmu : Ilmu Teknik Kimia

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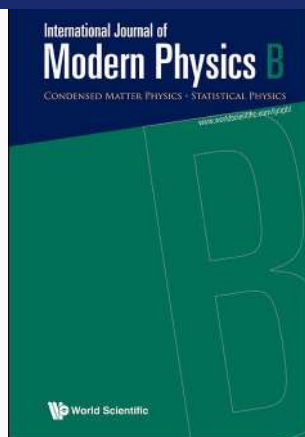
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Preface

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Effect of Ti element on the microstructure and properties of high chromium surfacing layer

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Effect of process parameters on the microstructure evolution of laser surface quenched Ni-Al bronze

Zhenbo Qin, Da-Hai Xia, Yida Deng, Wenbin Hu and Zhong Wu

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Metals and Alloys

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Thermomechanical powder processing of beta-eutectoid bearing near-alpha Ti alloys

Yousef Alshammari, Fei Yang and Leandro Bolzoni

2040030

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Abstract | **PDF/EPUB**

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Metals and Alloys

Surface modification of TiO_2 for visible light photocatalysis: Experimental and theoretical calculations of its electronic and optical properties

Dessy Ariyanti^{*,†,||}, Surayya Mukhtar^{‡,**}, Nisar Ahmed^{§,††},
 Zhuofeng Liu^{¶,‡‡}, Junzhe Dong^{†,§§} and Wei Gao^{†,¶¶}

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Surface modification has been used as a method to create defects on TiO_2 materials, which can improve their desirable properties. In this paper, defected TiO_2 nano-powder was successfully synthesized by chemical reduction using NaBH_4 as the reducing agent at 300–400°C under argon atmosphere. High defect concentration can be produced by increasing process temperature. The modified TiO_2 shows good visible light absorption and photocatalytic activity on degradation of Rhodamine B (4–9 times higher than the pristine TiO_2) with the visible light irradiation. Further XPS analysis and theoretical studies using full potential linearized augmented plane wave (FP-LAPW) method as implemented in wien2k code revealed the existence of oxygen vacancy and Ti^{3+} in the modified samples. These types of defects were responsible for the modifications of the electronic and optical properties of TiO_2 , resulting in the improved photocatalytic activity in visible light irradiation.

^{||}Corresponding author.

Effect of process parameters on the microstructure evolution of laser surface quenched Ni-Al bronze

Zhenbo Qin, Da-Hai Xia, Yida Deng, Wenbin Hu and Zhong Wu

Doi: <https://doi.org/10.1142/S0217979220400299>

[Previous](#)

Abstract

[Next](#)

Laser surface quenching technology was used to modify the surface microstructure of as-cast Ni-Al bronze (NAB). The modified microstructure was studied by scanning electron microscopy (SEM), and the effect of laser process parameters on microstructure evolution was investigated. It was found that a fine-grained zone with fully $\beta\beta$ phase microstructure formed on the surface of NAB. The depth of the fine-grained zone increased with the increase of laser power, and surface melting occurred when the power reached a threshold value. Laser scanning at a low rate caused the coarsening of grain boundary, while too high rate led to incomplete quenching. Spot overlap ratio determined the microstructure of the superimposed area, and unsuitable ratio would cause bulky $\kappa\kappa$ precipitation at the grain boundary or incomplete transformation from $\alpha\alpha$ phase to $\beta\beta$ phase.

Keywords: Ni-Al bronze laser surface quenching microstructure characterization laser parameters

PACS: 81.65.LP

Thermomechanical powder processing of beta-eutectoid bearing near-alpha Ti alloys

Yousef Alshammari, Fei Yang and Leandro Bolzoni

<https://doi.org/10.1142/S0217979220400305> | Cited by: 0

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Abstract

This work focuses on developing near-alpha Ti alloys via the selective addition of small concentrations of low-cost eutectoid β -stabilizers like Cu and Mn. In particular, these newly designed near-alpha Ti alloys are manufactured via the cheapest powder metallurgy route of cold pressing plus sintering. Moreover, thermomechanical deformation of the sintered alloys via hot forging in the $\alpha + \beta$ and β field was also investigated aiming to enhance the mechanical properties through reduction of the residual porosity and microstructural control. It is found that the initial addition of a small amount of eutectoid β -stabilizers leads to higher tensile properties with comparison to pure Ti produced by powder metallurgy, and this is due to the formation of a coarse lamellar structure due to the presence of β -stabilizers. Further enhancement of the strength is achieved by means of hot thermomechanical processing thanks to sealing of the residual pores, texturing, and refinement of the microstructural features.

Keywords: Titanium alloys powder metallurgy eutectoid β -stabilizer thermomechanical processing mechanical properties