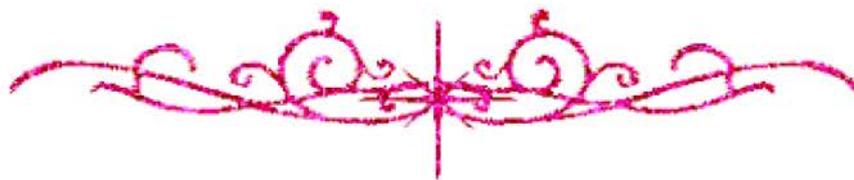


hossam maghraby



شبكة المعلومات الجامعية

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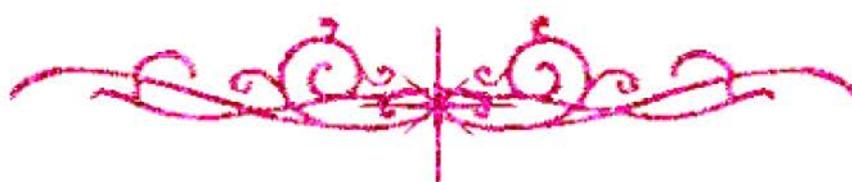
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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

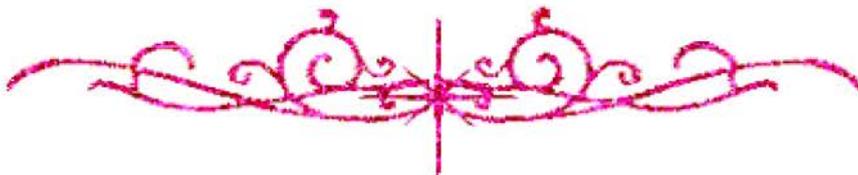
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



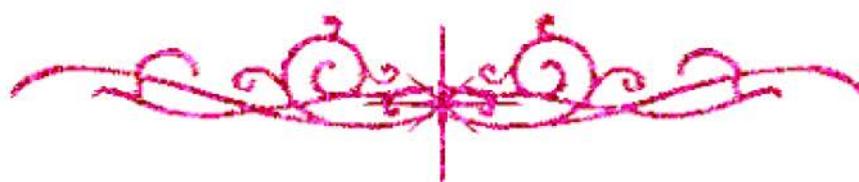
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شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



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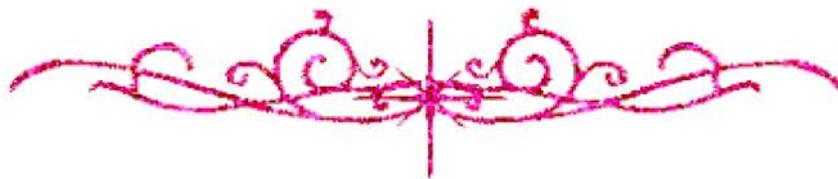


شبكة المعلومات الجامعية



بالرسالة صفحات

لم ترد بالأصل



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STUDY ON WELDABILITY OF 50/50 Ni/ Cr ALLOY

A Thesis
Submitted to
Metallurgical and Materials Engineering Department
Faculty of Petroleum and Mining Engineering
Suez Canal University

For
The Master Degree of Science
In

Metallurgical and Materials Engineering

By

Hany Mohamed Masoud Farag

B.Sc. in Mechanical Engineering, 1988

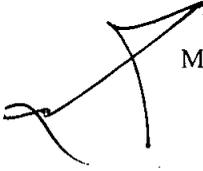
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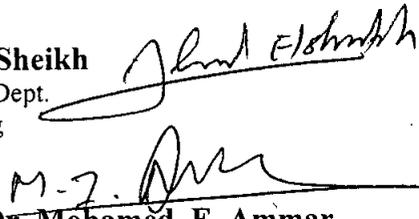
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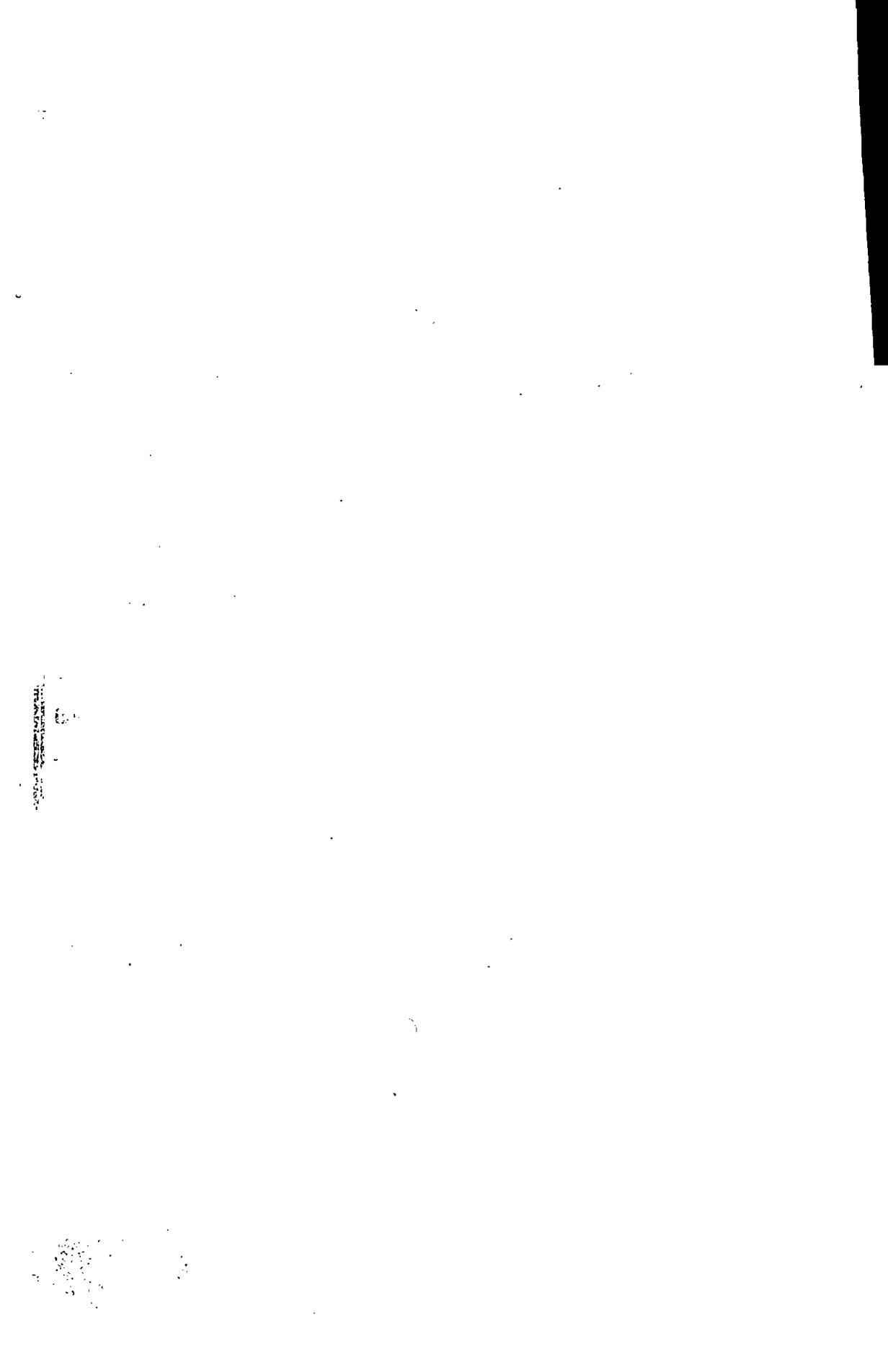
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2006



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Faculty	Faculty of Petroleum and Mining Engineering
Department	Metallurgical and Materials Engineering Department
Location	Suez - Egypt
Degree	Master Degree of Science
Date	
Language	English
Supervision Committee	Prof. Dr. Mohamed E. Ammar, Ass. Prof. Dr. Hamed A. Nagy

English Abstract

In the present study observing the metallurgical transformations due to the high service temperature, and the effect of this transformation on mechanical properties and weldability of the alloy of interest (as cast and after service). Various heat treatment regimes at different temperatures and welding at different heat inputs, several facts about the phase structure evolution and its relation to the deterioration in mechanical properties. It is related to precipitation of Cr-rich α -phase inside γ -phase at low service temperatures (close to 700°C). This precipitation gets slightly enhanced if the alloy is previously heated at higher temperatures (1050°C) due to the high solubility of Cr in the γ -phase at these temperatures as compared with that at service temperatures (close to 700°C). Also heat input controls the hardness profile across the weld, with higher possibility of formation of local hard zone and hard throat as the cooling rate decreases, especially for the as-cast alloy. Hard throat could be avoided by either increasing or decreasing the heat input beyond a critical value.

Key words	Superalloy, Heat Treatment, Microstructure, weldability, Heat input, local hard zone, hard throat
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ACKNOWLEDGEMENTS

With great pleasure, loyalty, and sincereness, I would like to express high thankful and gratitude feeling to Prof. Dr. Mohamed E. Ammar, for his continuous interest, unfailing bits of advice, and his creation the theme of the study as well as the enthusiasm needed to go through it, besides his supportive supervision.

My deep thanks should also go to ass. prof. Dr. Hamed A. Nagy, who supported me through continuous directing, supervision and fruitful discussions.

I am indebted to prof. Dr. Rashad M. Ramadan, Dean of Faculty of Petroleum and Mining Eng. for his interest, guidance and fruitful discussion through his participation.

I would like also to thank all other staff members of the Metallurgical and Material Eng. Dept., for their encouragement. with deep thankful feelings to my father, my mother and my wife for their continuous encouragement.

Finally, with sincere gratitude I shall forever remember every single support and help from everybody for my study.



ABSTRACT

