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Bengkel Penulisan Monograf

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Rosli Hussin

Pengerusi Panel Buku Penyelidikan/Book Chapter
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Johor

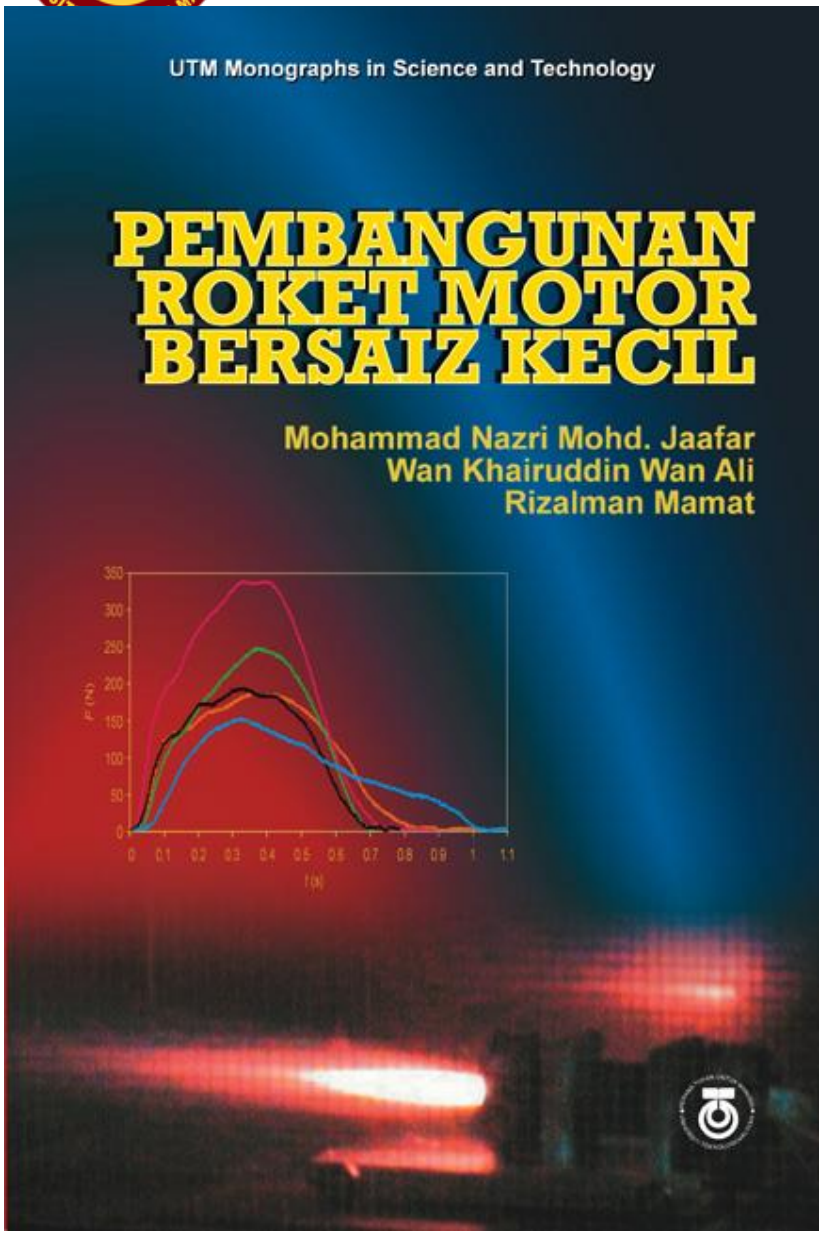
4

Research Book: Example and Analysis

Outlines

- Structure of Research Book
- Write and Structure Your Manuscript - Learn from Example
- Function/Need Editor?
- Produce Good Research Book?

Contoh- UTM Monograph



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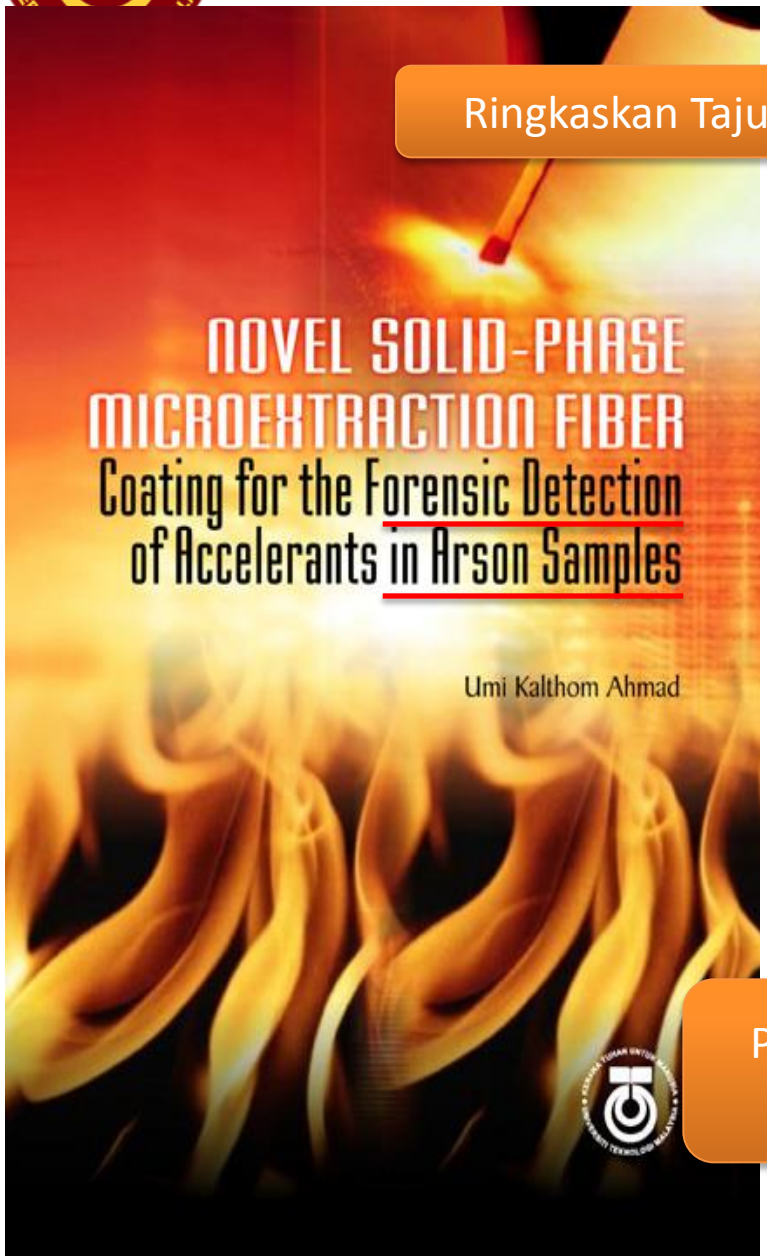

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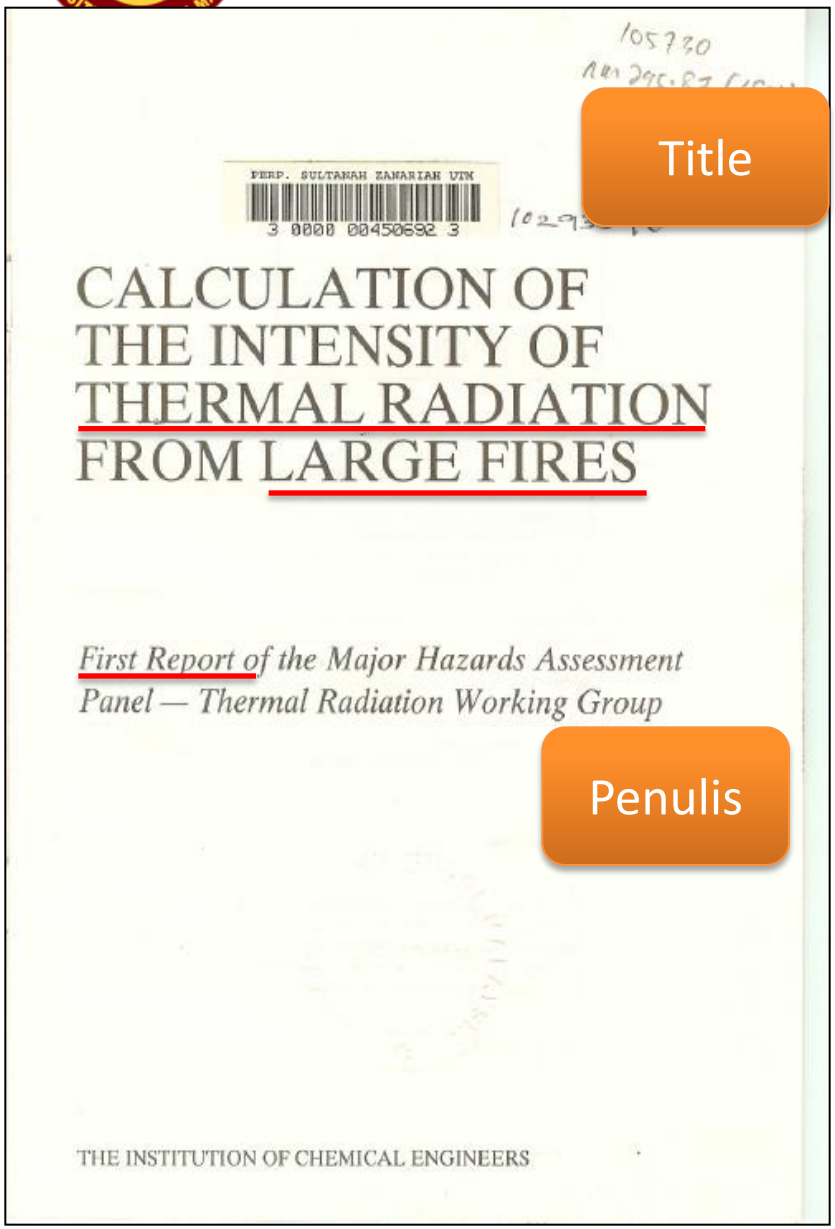

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Penulis

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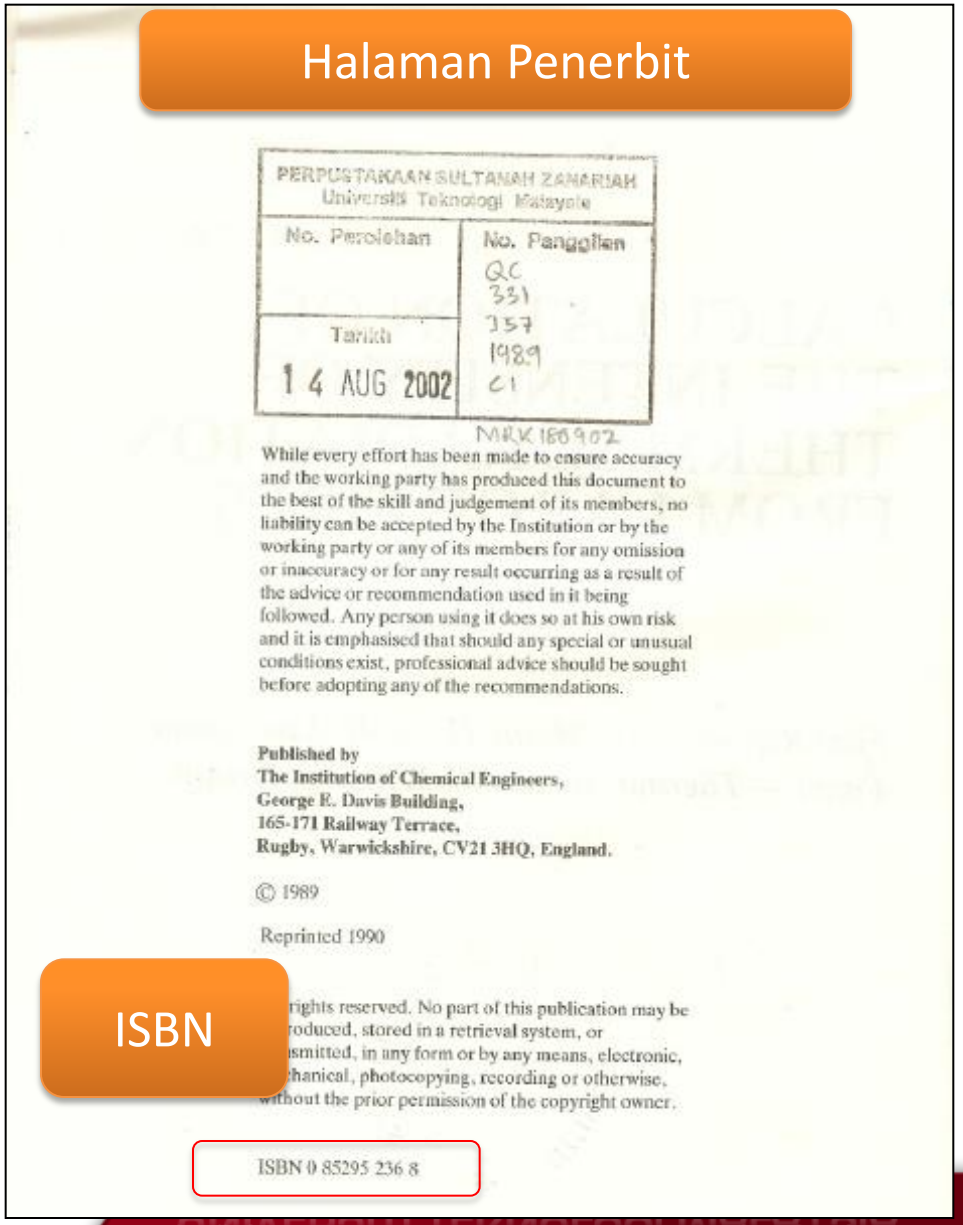

ISBN

PREFACE

The Major Hazards Assessment Panel was established in 1982 to provide a means for scientists and engineers, as professional people rather than as representatives of companies or other organisations, to comment on matters of current interest in the field of major chemical hazards. The full Panel, about sixty people, never meets. Instead a small Advisory Group selects subjects for study from among those suggested by members of the Panel, and Working Parties are set up to prepare reports on these subjects. The draft reports are sent to the full membership for comment.

The Institution of Chemical Engineers helped to set up the Panel and provides secretarial services but the Panel is not responsible to the Institution and it is not a committee of the Institution. The authority of the Panel's reports is due solely to the professional reputation of its members, particularly the members of the Working Parties.

This Working Group, on thermal radiation, was established by the Major Hazards Assessment Panel.

Membership of the Working Group

Members served on the Working Group in a private, non-representational capacity. Their principal professional interests are:

R. P. Pape (Risk assessment for regulation and control);
N. F. Scilly (Assessment of flammable and explosive substances);
F. K. Crawley (Risk assessment for the process industries);
I. Hymes (Risk assessment for the process industries);
J. Moorhouse (Combustion processes and behaviour of fires);
J. A. Eyre (Combustion of large spillages of flammables);
B. W. Platts (Medical aspects of accidents);
E. S. Johnson (Planning control of land use).

Penulis/ Penyumbang

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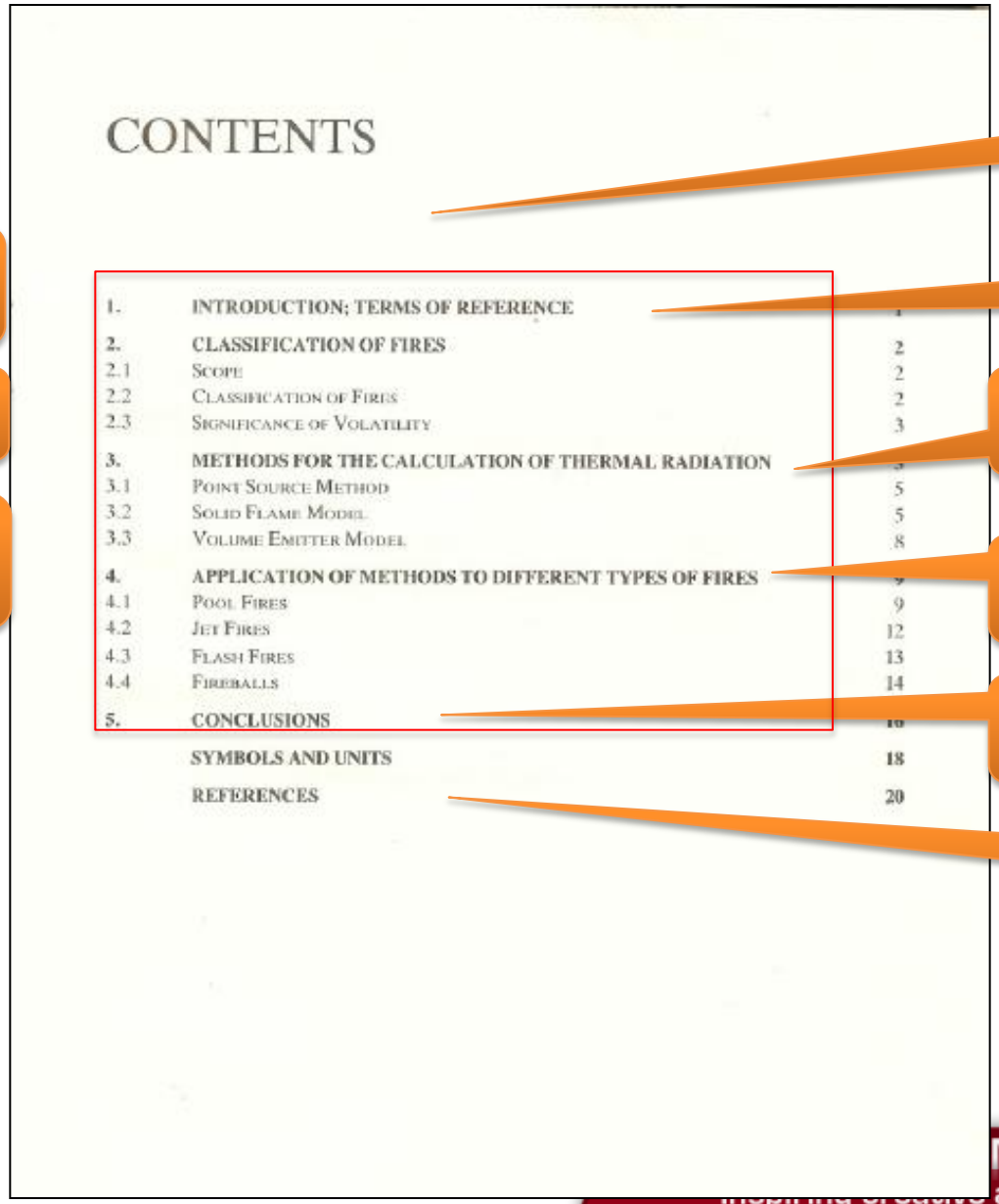
Improve style of Writing



CONTENTS

Bahagian Awalan?

INTRODUCTION

Methodology

Results & Discussion

Conclusion

Bahagian Akhiran

1. INTRODUCTION

Prakata

This is the first report of the Working Group on Thermal Radiation of the Major Hazards Assessment Panel.

The terms of reference are:

intro

"to consider what levels of thermal radiation (from continuous fires, flash-fires and BLEVE's) would be significant in an emergency at places to which the public have access, taking the probability of the emergency into account, and how the radiation levels should be calculated."

The Working Group will report in three stages as follows:

i. A description of various types of fire and methods for the calculation of the intensity and duration of thermal radiation in relation to the distance from the fire.

objective

ii. The relationship between the amounts of thermal radiation received by people and the consequent injury levels including the risk of death.

iii. Factors influencing the choice of thermal radiation dose thresholds for the purposes of: emergency planning, control of public access and siting of installations.

2. TYPES OF FIRE

scope

2.1 SCOPE

This paper is mainly a[illegible]l fires which have the capacity to cause injury by the radiation of intense heat beyond the immediate flame boundary. Methods are described which may be used to calculate the intensity of thermal radiation at a given position in relation to a particular type and size of fire. For the purpose of this paper, no judgement is made about the probability of any particular fire situation. The paper begins with general comments on calculation methods, then it describes their application to different types of fire.

Fires may involve solids (eg wood piles, buildings etc); liquids (eg oil, petrol, alcohol etc) or gases (eg natural gas, process gases etc). In general the volatility of the fuel is one of the key parameters which determine the severity and speed of development of the fire (see Section 2.3).

Fires involving solids can, under some circumstances, present a significant hazard from thermal radiation outside the confines of the fires. However, such fires are usually relatively slow to build up, thus giving warning time; and the output of radiant heat is moderate, so that the range of the thermal radiation hazard is limited. Consequently, solid fires are not considered to constitute "Major Hazards" in the present context and are not included in this report. (Note: certain solids which are used as propellants for military applications are exceptionally fast-burning and these constitute special cases which are not covered here. Also, events such as the Bradford City Football Club fire show that warning-times may be short if a solids fire can spread over a wide area.)

The most severe types of fires are those involving highly flammable and highly volatile substances such as LNG, LPG or gases under pressure. Other flammable liquids may, however, give similar hazards if their volatility is increased by them being at elevated temperatures.

Any explosion effects associated with fires are not dealt with in this report. A companion paper on such effects has recently been published[1].

Chap 2

2.2 CLASSIFICATION OF FIRES

Release of liquids or gases from containment c[illegible]es of fires. These may be classified as pool fires, jet fires, flash fires, fireballs and firestorms.

i. POOL FIRE

A pool fire occurs when an accumulation of liquid in a pool on the ground or on water is ignited. A steadily burning fire is rapidly achieved since the fuel vapour required to sustain the flames is provided by evaporation of the liquid by the heat from the flames. For liquefied gases significant heat transfer from the surface on which the pool is

formed also contributes to the vaporisation of the fuel. The rate of consumption of fuel is dependent upon properties of fuel such as latent heat, and is equivalent to a pool depth regression in the range 6 to 13 mm/minute. The flames from pool fires behave entirely under the influence of their own buoyancy and are easily displaced by the wind.

ii. JET FIRE

A jet fire occurs when a flammable liquid or gas is released from a puncture or pipe into free air. The pressure of the release serves to generate a long flame which is stable under most conditions. Jet flames are largely unaffected by the wind. The duration of the fire is independent of the fire characteristics but is dependent on the release-rate and volume of the source. For a liquid or a two-phase jet a part of the liquid may "rain-out" of the jet giving rise to a pool fire.

iii. FLASH FIRE

A flash fire occurs when a cloud of flammable gas in a mixture with air is ignited. The shape of the fire is dependent upon the shape of the flammable cloud and the position of the ignition source. The fire is usually of short duration as the flame travels rapidly through the cloud. The velocity of the flame, which is usually a few metres per second, is dependent upon the gas concentration in the cloud and on the wind speed. Flash fires often serve as a way by which a remote source of ignition can lead to a jet or pool fire at the point of release. In certain circumstances it is possible for a flame to accelerate to a very high velocity, thus producing explosion effects[1]. This aspect is outside the scope of this document.

iv. FIREBALL

A fireball occurs when a quantity of flammable liquid or gas is suddenly released and is immediately ignited. The fuel is rapidly burnt as a spherical fireball which rises due to the initial momentum of the release and the high buoyancy of the hot flames. The initial fuel mass determines the fireball size and duration, and large fireballs are little affected by the wind.

Fireballs are known to arise following a BLEVE (boiling liquid expanding vapour explosion) in which fire induces heating and the subsequent failure of a pressurised storage vessel.

v. FIRESTORMS

In certain conditions, fire covering a very large area can produce a firestorm effect by inducing convection-driven winds which brighten the fire and propagate it by carrying sparks. There may also be significant damage and propagation by thermal radiation in such conditions. The scale of the phenomenon seems to exceed that of most installations, so it is not discussed further here.

significance

2.3 THE SIGNIFICANCE OF VOLAT[illegible]

The magnitude of the thermal radiation aris[illegible]ial depends on the rate and mass of gas or vapour released or produced by vaporisation of a liquid spill. For a liquid, volatility is a key factor in determining the type of fire, its

3. METHODS FOR THE CALCULATION OF THERMAL RADIATION

Three different types of method are available for calculating the thermal radiation levels at selected positions outside the flame envelope. Each method is a different level of complexity and each is suited to different types of applications. The major differences in method are reflected in the description of the source of radiation.

3.1 Point Source Method

The simplest way of estimating the thermal radiation levels from a fire is termed the point source model. In this technique a selected fraction f of the total heat of combustion is assumed to radiate in all directions from a single point. Incident flux I, at any distance d, is therefore given by

$$I = \frac{fH_c}{4\pi d^2}$$

where H_c is the heat of combustion per unit time. Values of f can be selected for different types of fires (see below).

The simplicity of the point source method is such that specific allowance is not normally made for the effects of atmospheric attenuation of thermal radiation by the atmosphere between the flame and receiver (see below). This is because it is normally inherently allowed for in the values selected for f. The advantages of this technique are its ease of use and its wide range of applicability.

A disadvantage is that for positions close to a flame (eg within 2 pool diameters in the case of pool fires) the incident radiation levels are underestimated. This may be particularly important for designing protective systems, planning fire-fighting response etc. Also precise values of f are not known for all types of fire, fuel types and size of fire and hence the accuracy is not high unless carefully tuned using experimental data. This has been done for some specific cases.

More refined point source methods have been developed for some special situations. See, for example, API 521[2].

3.2 SOLID FLAME MODEL

Some of the shortcomings of the point source model can be overcome using a solid flame model which assumes that the flame can be represented by simple solid geometrical shapes such as a cylinder, sphere or cone etc and that the radiation is emitted from its surface. Consequently, it allows a better assessment of the thermal

4. APPLICATION OF METHODS TO DIFFERENT TYPES OF FIRES

Analysis Types of Fire

4.1 POOL FIRES

A pool fire results when a pool of liquid fuel is ignited. The pool may be contained, for example, in a tank or bund, or spreading, as for example from a spill on to a flat surface such as concrete or water. In the latter case, the fire will be short-lived unless it is continuously fed with fuel, since the 'pool' will be very shallow. Another possibility is a spill of liquid into a trench or channel which may limit the spread.

Application of the solid flame model to calculate thermal radiation from a pool fire requires that the flame shape be approximated to a simple geometry to facilitate the calculation of a view factor. In the discussion below it is assumed that the pool position is known; it is beyond the scope of this report to discuss methods of calculating the spread of unconstrained pools.

The methods described in this section can be used for pools of liquefied gases such as LNG or LPG, as well as higher-boiling flammable liquids. With spills of liquefied gases the formation of a large quantity of vapour may occur before ignition, giving the possibility of a flash fire or even a vapour-cloud explosion. This section deals only with the combustion of the residual pool of liquid.

i. FLAME SHAPE CORRELATION

The shape most commonly chosen to represent a fire on a circular or low aspect ratio rectangular pool is a tilted cylinder. However, there are several possible variations on the cylindrical theme including an oblique cylinder of circular cross-section, a tilted cylinder of circular cross-section and an oblique cylinder of elliptical cross-section. Al

Perlu Transformasi→Monograf
Peranan Penulis & Editor

To calculate the length of the flame l above the pool surface, correlations have been developed based on the size of the pool D (the pool diameter in the case of a circular pool or an equivalent diameter for noncircular pool) and the physical properties of the fuel. One of the most widely used correlations is that developed by Thomas[8]:

$$\frac{l}{D} = 42\left(\frac{\dot{m}}{\rho_a\sqrt{g\,D}}\right)^{0.6}$$

where $\dot{m}$ is the mass burning rate of the fuel
ρ_a is the ambient air density
g is the gravitational constant

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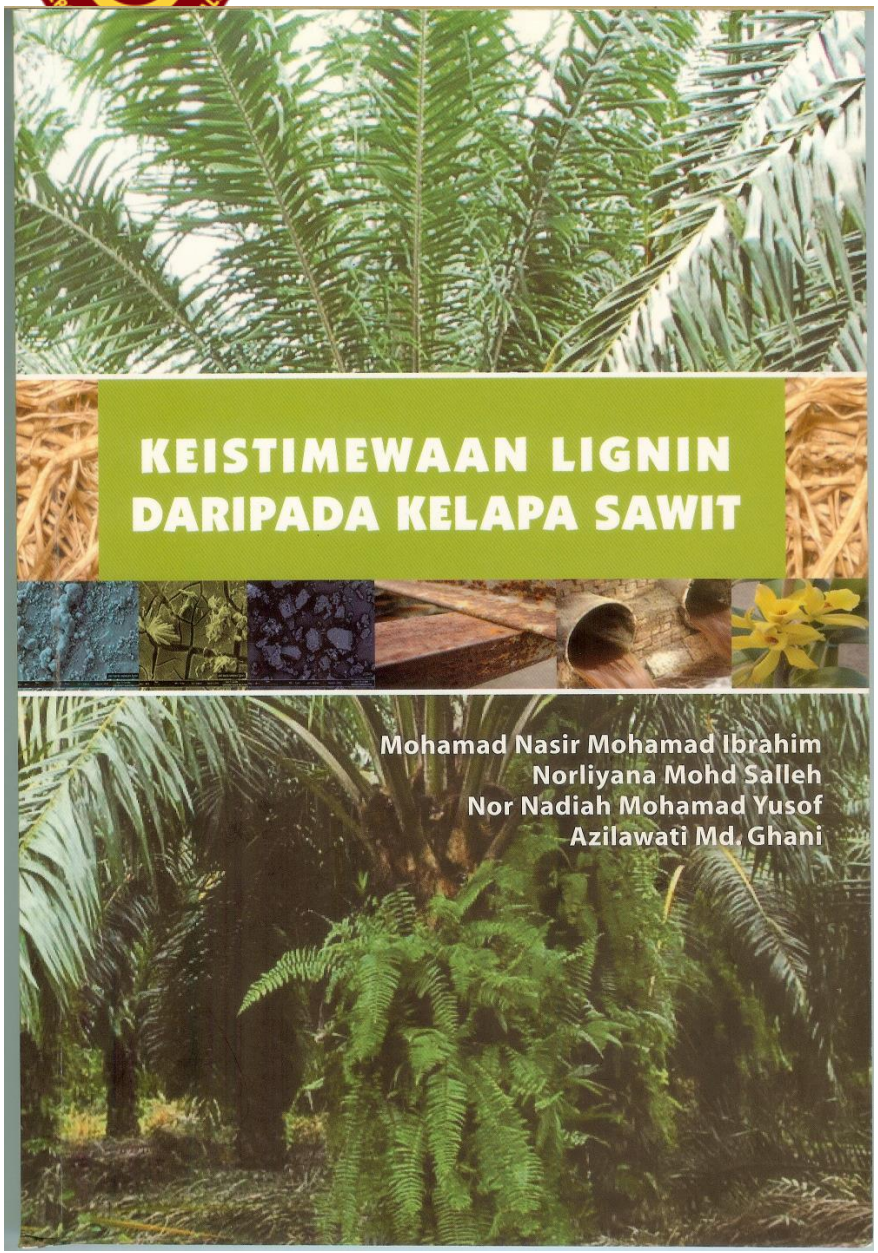

KANDUNGAN

Bab 1

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dan teknologi dalam penyelidikan hasil buangan kelapa sawit membolehkan TKKS kini diproses untuk dijadikan kertas.

Bahan Buangan Lignoselulosik daripada TKKS

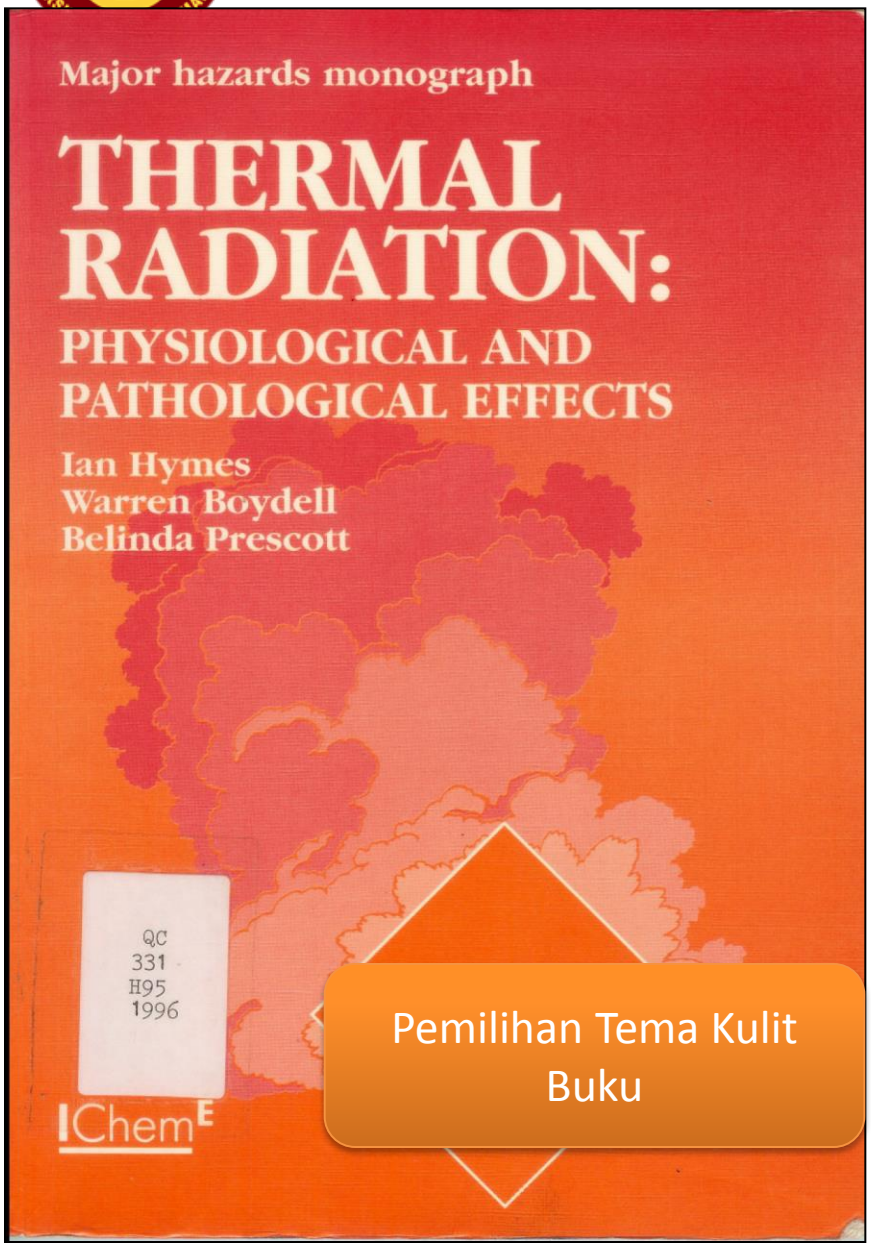
Industri perladangan kelapa sawit merupakan industri pertanian terpenting di Malaysia. Hal ini dibuktikan dengan keluasan kawasan penanaman kelapa sawit yang kini mencecah 4.2 juta hektar. Penghasilan minyak kelapa sawit mentah pula telah meningkat sehingga 15.9 juta tan setahun. Sehubungan itu, industri perladangan kelapa sawit telah menghasilkan bahan buangan lignoselulosik yang banyak.

TKKS merujuk pada tandan buah kelapa sawit yang telah ditanggalkan buahnya seperti yang ditunjukkan dalam Rajah 1.2. Secara amnya, TKKS diperoleh melalui proses peleraian buah kelapa sawit daripada tandannya yang dilakukan dengan menggunakan mesin penanggal buah seperti yang ditunjukkan dalam Rajah 1.3.

Rajah 1.2 TKKS biasanya dilupuskan secara pembakaran dan abu yang terhasil dijadikan baja organik

Sumber: Ihsan Lenga Palmoil Industries Sdn. Bhd.

Monograph


Major hazards monograph
THERMAL RADIATION:
PHYSIOLOGICAL AND PATHOLOGICAL EFFECTS
Ian Hymes
Warren Boydell
Belinda Prescott
QC
331
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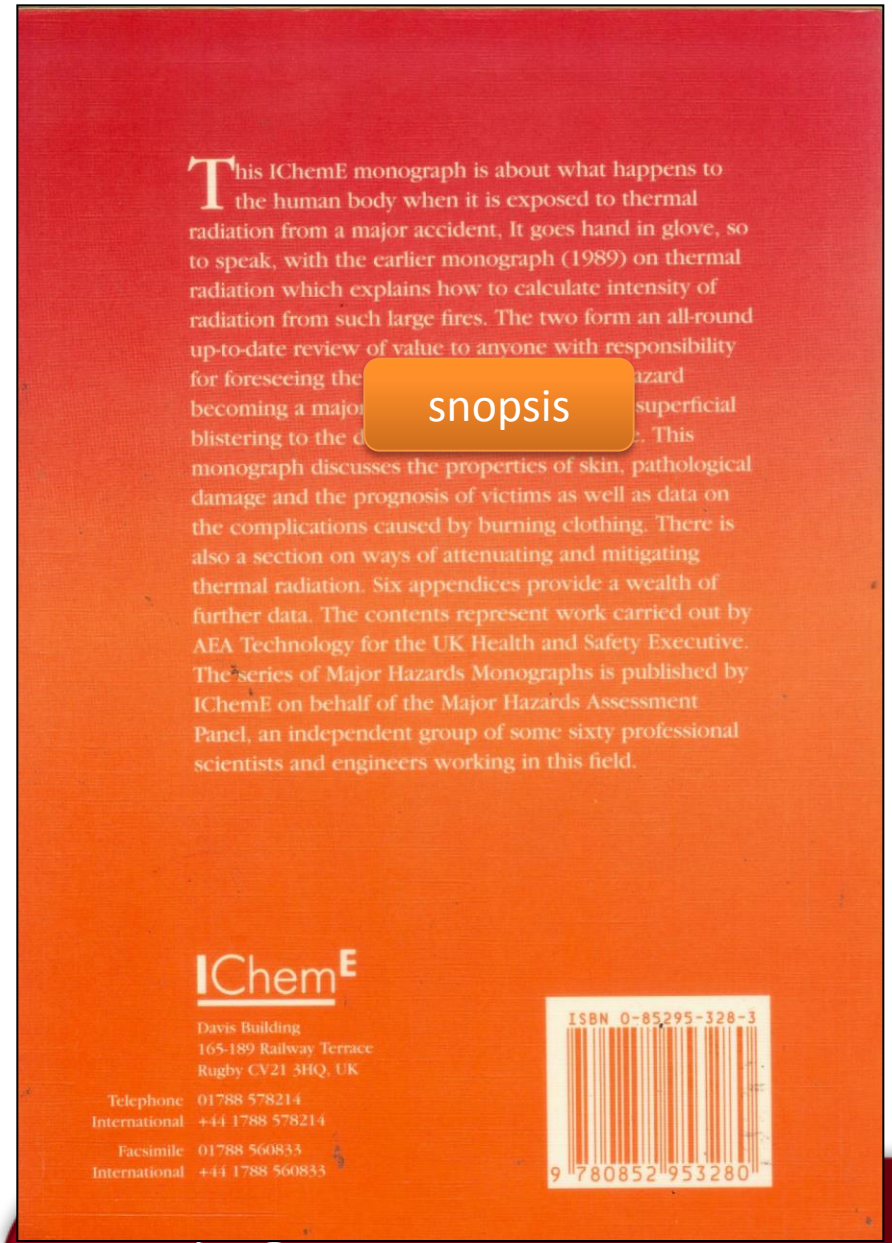
1996
IChemE
Pemilihan Tema Kulit Buku


This IChemE monograph is about what happens to the human body when it is exposed to thermal radiation from a major accident. It goes hand in glove, so to speak, with the earlier monograph (1989) on thermal radiation which explains how to calculate intensity of radiation from such large fires. The two form an all-round up-to-date review of value to anyone with responsibility for foreseeing the
snopsis
becoming a major
superficial blistering to the
. This monograph discusses the properties of skin, pathological damage and the prognosis of victims as well as data on the complications caused by burning clothing. There is also a section on ways of attenuating and mitigating thermal radiation. Six appendices provide a wealth of further data. The contents represent work carried out by AEA Technology for the UK Health and Safety Executive. The series of Major Hazards Monographs is published by IChemE on behalf of the Major Hazards Assessment Panel, an independent group of some sixty professional scientists and engineers working in this field.
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165-189 Railway Terrace
Rugby CV21 3HQ, UK
Telephone 01788 578214
International +44 1788 578214
Facsimile 01788 560833
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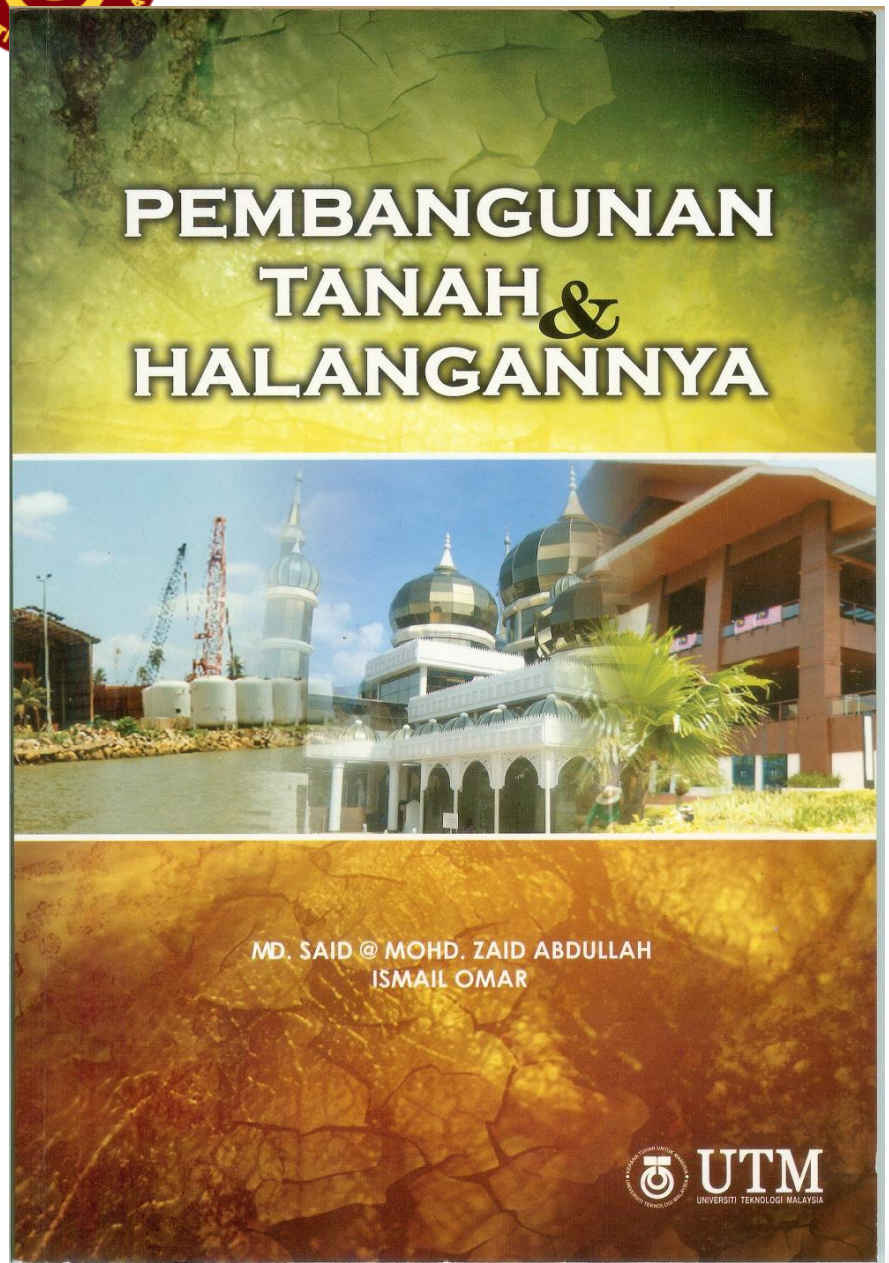

KANDUNGAN

1

PENGENA
PEMBANGUNA

1.1 PENGENALAN

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pihak. Pembangunan tanah melibatkan rar
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Pengairan dan Saliran, dan Jabatan Bekalan A
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> *"Land development process is both com*
> *procedures and diverse due to many agen*
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1.2 KONSEP PEMBANGU

Kejayaan pelaksanaan sesuatu pemba
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Gore and Nicholson, 1991; Healey
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Pembangunan tanah ialah ha
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terlibat dalam masyarakat dan tidal

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Semua bentuk pembangunan adala

yang terkandung dalam Akta Perancangan Bandar dan Desa, 1976. Menurut Akta Perancangan Bandar dan Desa, 1976, Seksyen 2(1), halaman 4, definisi pembangunan ialah;

> "Kerja-kerja bangunan, kejuruteraan, perlombongan, perindustrian, atau apa-apa kerja lain yang seumpamanya pada, di atas, di sebelah atau di bawah tanah atau membuat sesuatu perubahan matan tentang penggunaan sesuatu tanah atau bangunan".

Kegagalan untuk membuat perubahan minda dan sikap serta berinteraksi dengan baik antara golongan profesional dengan bukan profesional, antara profesional dengan pihak berkuasa tempatan, dan antara bukan profesional dengan pihak berkuasa tempatan akan menyebabkan kelulusan untuk sebarang bentuk pembangunan yang dirancang berlanjutan dan mengambil masa yang lama. Kegagalan dan kelewatan dalam merancang dan meluluskan sesuatu bentuk cadangan pembangunan akan menimbulkan masalah yang lain pula. Pembangunan tanah akan terhalang atau dengan lain perkataan tidak dapat dilaksanakan. Masalah yang dijangka timbul akibat daripada kelewatan kelulusan cadangan pembangunan tanah termasuklah bentuk dan corak permintaan pembangunan dan kuasa beli golongan atau kumpulan sasaran. Satu cadangan pembangunan yang baru perlu dikemukakan untuk kelulusan bagi memenuhi kehendak dan keperluan semasa. Proses ini akan berulang-ulang dan keadaan ini tentunya akan melambatkan perlaksanaan pembangunan tanah.

1.3 KAJIAN TERHADAP HALANGAN PEMBANGUNAN TANAH

Kajian terhadap halangan pembangunan tanah telah dijalankan oleh penyelidik seperti Evans (1983), Wiltshaw (1985), dan Neutze (1987). Kajian sedemikian dijalankan di luar negara. Manakala di Malaysia, kajian seumpama itu telah dijalankan oleh Ismail Omar (1999b), Norhidayah (2008), dan Djurdjani(2008).

Mengkaji gelagat manusia menurut pendekatan humanisme bermaksud melihat persepsi, motif, strategi, dan tindakan manusia dalam pembangunan tanah. Pendekatan humanisme menumpu kepada individu dan motivasi mereka. Gore dan Nicholson (1991) telah menggunakan pendekatan humanisme

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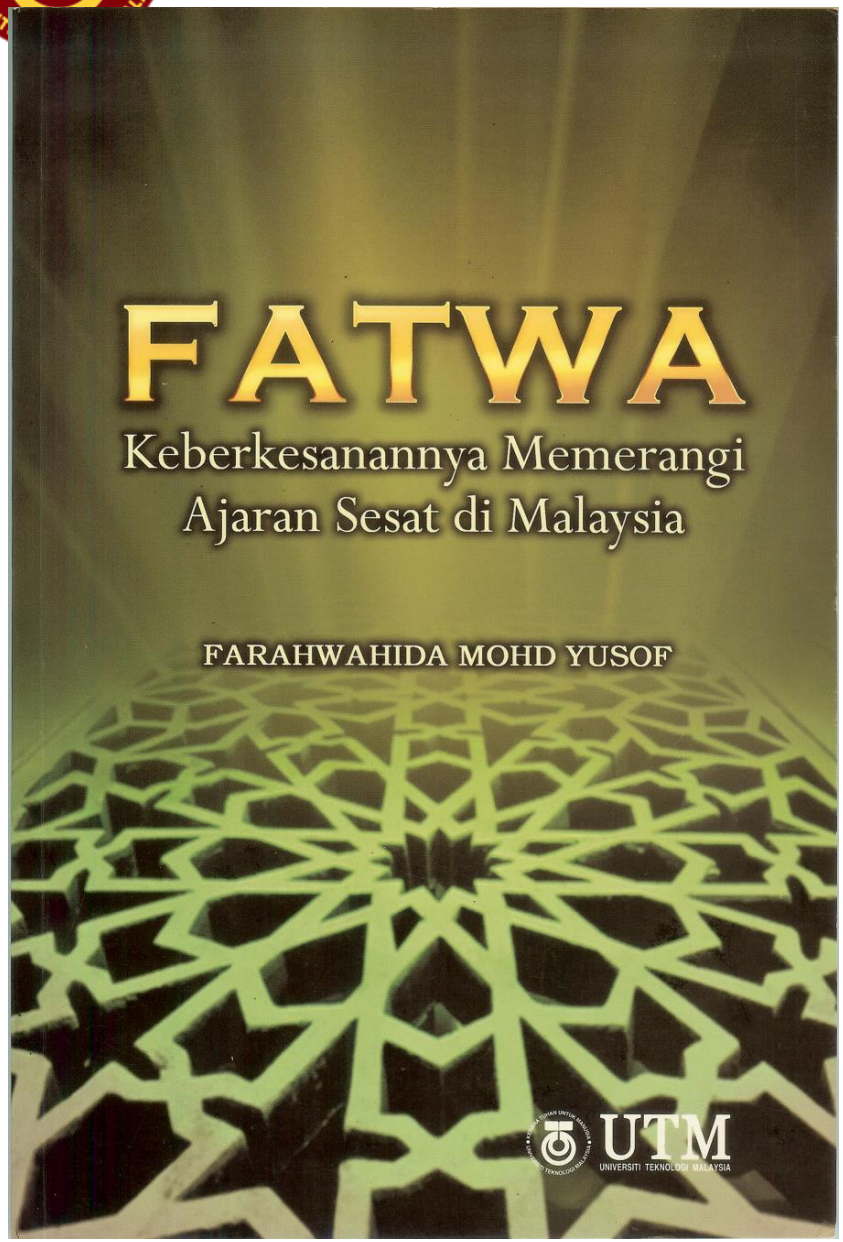

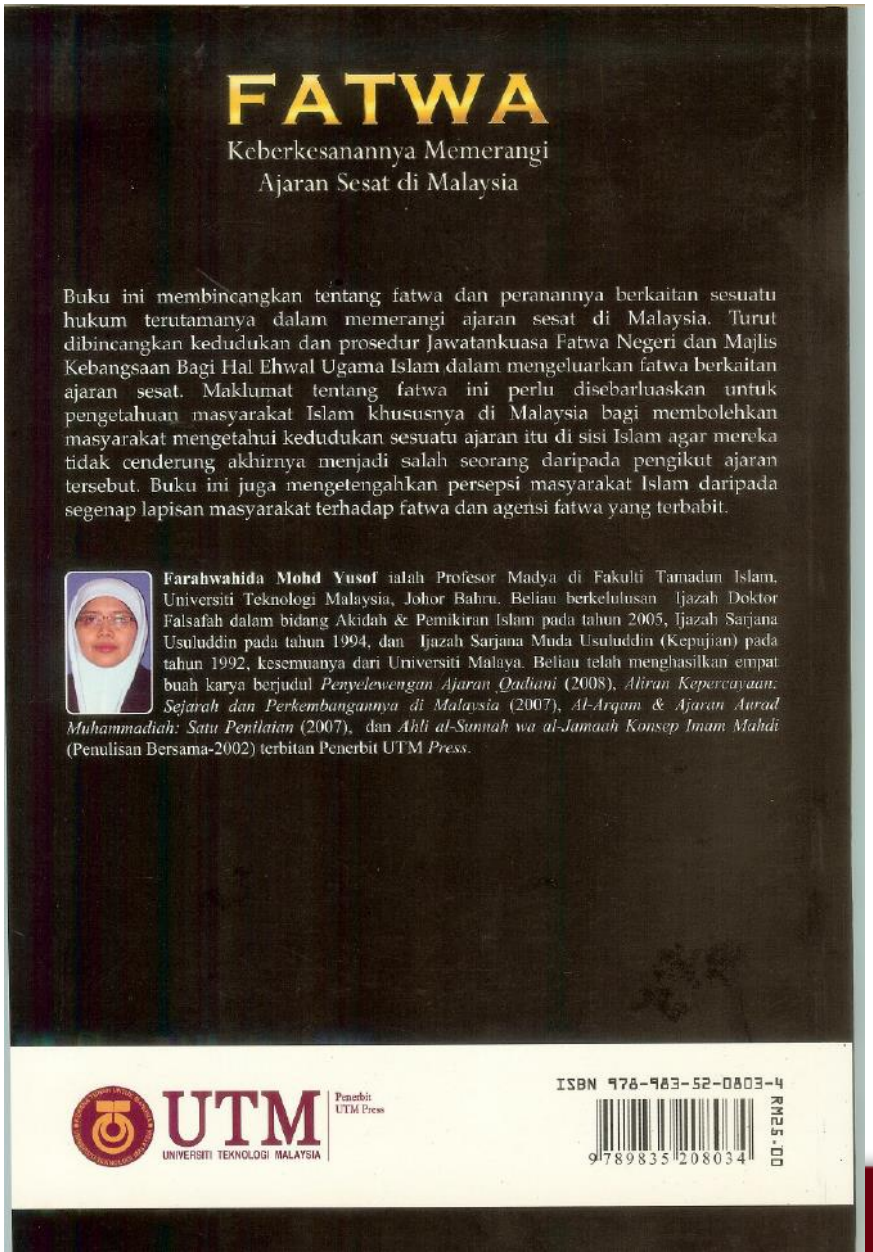

KANDUNGAN

CONTROL DESIGN & OPTIMIZATION TECHNIQUES

SERIES 2

Editors

Salinda Buyamin
Norhaliza Abdul Wahab

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EXAMPLE
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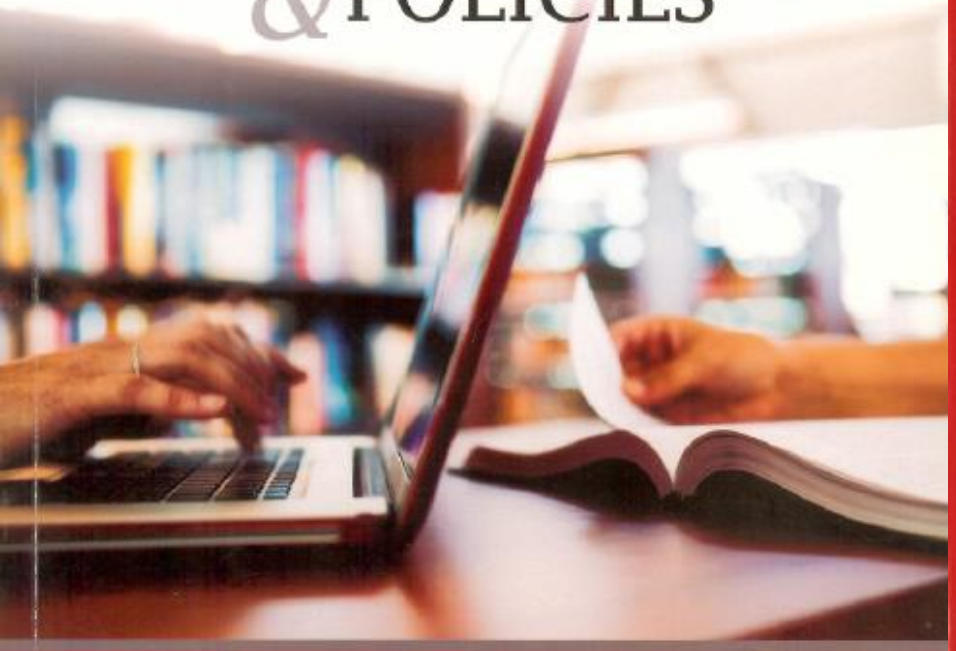

Editors

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HAMDAN SAID

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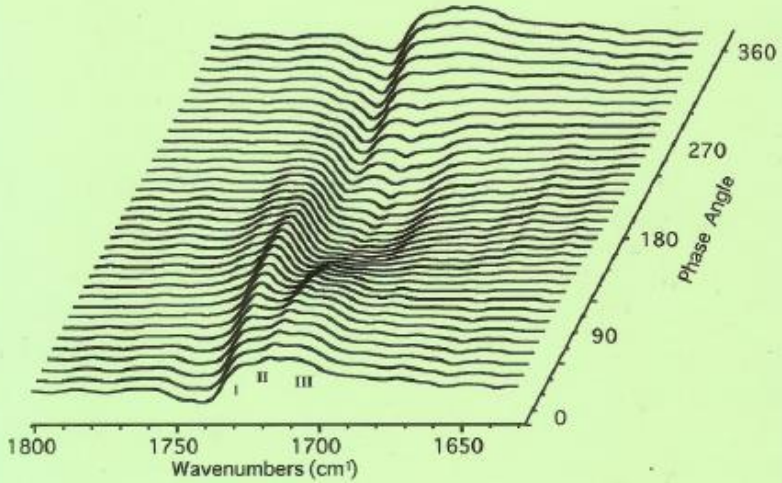
Vibrational Spectroscopy of Biological and Polymeric Materials



edited by
Vasilis G. Gregoriou
Mark S. Braiman

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Chemistry

Used primarily for characterizing polymers and biological systems, vibrational spectroscopy continues to uncover structural information pertinent to a growing number of applications. **Vibrational Spectroscopy of Biological and Polymeric Materials** compiles the latest developments in advanced infrared and Raman spectroscopic techniques that are applicable to both polymeric materials and biological compounds. It also presents instrumentation and experimental details that can be used by polymer chemists and biochemists in the design of their own experiments.

The book discusses static and dynamic FT-IR spectroscopies to liquid crystalline polyurethanes. It discusses the measurement of static and dynamic linear dichroism and stress or strain in both single and multiple fiber composite materials, the roles of vibrational spectroscopy, and the Langmuir-Blodgett technique in the study and preparation of high-quality ultrathin materials. The book also covers two-dimensional correlation spectroscopy, vibrational circular dichroism, focal-plane arrays, the use of ligand-gated FT-IR difference spectroscopy in neuropharmacology, and the application of time-resolved FT-IR spectroscopy to biological materials.

Features

- Demonstrates methods that take advantage of recently available mid-IR multichannel detectors
- Outlines the development of modeling methods, utilizing both small molecules and computations
- Describes imaging techniques that utilize molecular vibrational spectroscopy
- Offers techniques for identifying ligands and modes of ligand action for the large number of membrane receptors recently identified in the human genome
- Considers transmission and reflection measurements applied to a wide variety of thin films
- Includes advances in microscopic mid-IR multichannel detectors combined with interferometers
- Provides a detailed guide to the use of commercial step-scan instrumentation for examining sub-millisecond mechanistic details of photobiological processes

Written by eminent experts in these fields, **Vibrational Spectroscopy of Biological and Polymeric Materials** is an ideal and practical reference for the broad spectrum of researchers interested in the analysis and integration of biological and polymeric materials.

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Vasilis G. Gregoriou, Sheila E. Rodman, Bindu R. Nair, and Paula T. Hammond

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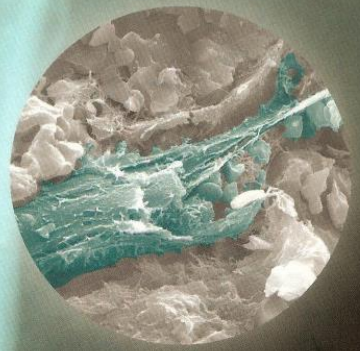

Edited by
Amit Bandyopadhyay
Susmita Bose

Material Science and Engineering

Characterization of Biomaterials

One of the key challenges current biomaterials researchers face is identifying which of the dizzying number of highly specialized characterization tools can be gainfully applied to different materials and biomedical devices. Since this diverse marketplace of tools and techniques can be used for numerous applications, choosing the proper characterization tool is highly important, saving both time and resources.

Characterization of Biomaterials is a detailed and multidisciplinary discussion of the physical, chemical, mechanical, surface, ***in vitro*** and ***in vivo*** characterization tools and techniques of increasing importance to fundamental biomaterials research.

KEY FEATURES

- The work comprises contributions from a cross-section of the physical sciences, biological sciences, engineering and applied sciences characterization community, providing researchers with gainful and cross-cutting insight into this highly multi disciplinary field
- Detailed coverage of important test protocols helps researchers by providing specific real-world examples and standards for applied characterization
- Detailed discussion on both biomaterials and biomedical device characterization issues and related standards to follow for regulatory purposes
- Special emphasis on orthopaedic and cardiovascular devices

Characterization of Biomaterials will serve as a comprehensive resource for biomaterials researchers requiring detailed information on physical, chemical, mechanical, surface, ***in vitro*** or ***in vivo*** characterization. The book is designed for materials scientists, bioengineers, biologists, clinicians and biomedical device researchers seeking input towards planning on how to test their novel materials or structures or biomedical devices towards a specific application. Chapters are developed considering the need for both industrial researchers as well as academics.

About the editors:

Amit Bandyopadhyay is a professor of Mechanical and Materials Engineering at Washington State University (WSU). He has written over 225 technical papers and holds 8 US patents, a Fellow of the American Ceramic Society, American Society for Materials, the American Institute for Medical and Biological Engineering (AIMBE) and the AAAS.

Susmita Bose is a professor of Mechanical and Materials Engineering at WSU. She has received the NSF-PECASE award, PACE award from the American Ceramic Society, named a "Kavli Fellow" of the National Academy of Sciences and a Fellow of the AIMBE. She is an editorial board member of six international journals, and has written over 200 technical papers.

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