

Science Abstracts now Digitised

The Inspec Database was created in 1968 based on the Science Abstracts Journals which have been published by the IEE since 1898. Now for the first time you will be able to access these files with a click of a mouse!

As library space becomes a premium, copies of early Abstracts Journals are becoming scarce. To overcome this, Inspec has digitised its entire collection of Science Abstracts between 1898 and 1968.

We have produced an XML archival backfile of the Inspec Database containing approximately 800,000 records, along with the original indexing, tables, graphs and diagrams. Additional indexing and classification codes have been added from the current Thesaurus and Classification. The archive will be fully searchable making it far more usable than it ever was in print!

Imagine the time and shelf space that will be saved with the archive. It has never been easier to locate references to historic research and engineering breakthroughs from hundreds of scientists including Albert Einstein, Guglielmo Marconi, Max Planck, Ernest Rutherford, Marie Curie, Robert Goddard, Charles Ginsburg and many more.

Continued on page 3

New from the IEE:
IEE.tv Global Webcasting...
See page 7

New Journal - Systems
Biology
See page 11

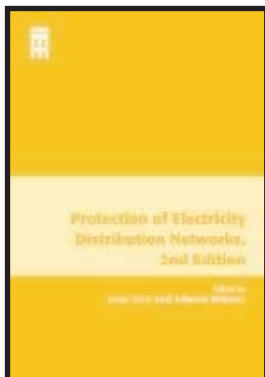
Inside this issue

- 2 New Books from the IEE
- 3 Forthcoming Events
- 4 Inspec Solves your Chemical Problems
- 6 Inspec Search Aids - New for 2004
- 7 Global Webcasting from IEE.tv
- 8 Transit of Venus on 8th June 2004
- 9 AIP/Inspec Announcement, Training Workshops
- 10 Information Science - E-mail Alert Bulletin
- 11 New! Systems Biology

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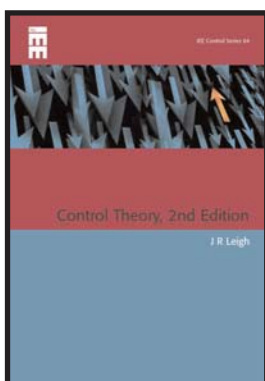


Protection of Electricity Distribution Networks, 2nd Edition

Juan Gers and Edward Holmes

A properly co-ordinated protection system is vital to ensure that an electricity distribution network can operate within preset requirements for safety for individual items of equipment, staff and public, and the network overall, leading to an improved electricity service. Written by two practising electrical engineers, this second edition of the bestselling *Protection of Electricity Distribution Networks*, (IEE, 1998) offers both practical and theoretical coverage of the technologies, from the classical electromechanical relays to the new numerical types which protect equipment on networks and in electrical plant.

PO047 Hardback c.360pp Available June 2004 ISBN 0-86341-357-9 £59/\$99

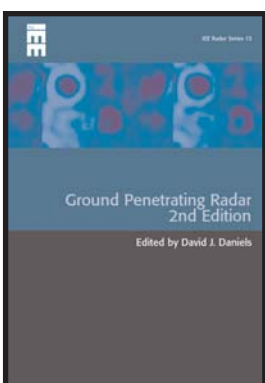


Control Theory, 2nd Edition

JR Leigh

This fully revised and updated edition of *Control Theory: A Guided Tour* addresses recent developments in the field. It discusses how the rise of H-infinity and similar approaches has allowed a combination of practicality, rigour and user interaction to be brought to bear on complex control problems and has helped bridge the gap between control theory and practice. The book also examines the effects of the rise of artificial intelligence techniques and the increasing availability of comprehensive software packages and concentrates on the structure, principles and context of control theory.

CE064 Hardback 320pp 2004 ISBN 0-86341-332-3 £52/\$89



Ground Penetrating Radar, 2nd Edition

David Daniels, Editor, ERA Technology Ltd

Ground-penetrating radar has come to public attention in recent criminal investigations, but has been a developing and maturing remote sensing field for some time. This fully revised and expanded edition of the best selling *Surface-Penetrating Radar* (IEE, 1996) presents for the non-specialist user or engineer, all the key elements of this technique, which span several disciplines including electromagnetics, geophysics and signal processing.

RA015 Hardback c.980pp Available July 2004 ISBN 0-86341-360-9 £65/\$99



Mobile and Wireless Communications: Key Technologies and Future Applications

Peter Smyth, Editor

Two of the fastest growing sectors of communications today are mobile and Internet, both of which have had a profound effect on people's lives. The convergence between these two sectors presents great opportunities for the future of 'unplugged' telecommunications. This book reviews the contribution of different wireless access technologies to that future and looks at the opportunities of opening up access to telecommunications systems, via application programming interfaces (APIs). The economic and regulatory issues associated with wireless communications are also discussed, with a look at the history and potential future of mobility from a user perspective.

BT009 Hardback 416pp 2004 ISBN 0-86341-368-4 £55/\$95

Continued from page 1



Robert Goddard, March 1926
‘The father of modern rocketry’

A typical early sample record is shown below relating to Robert Goddard’s early investigations into rocket science.

Sample Record	
November Issue, Volume 23, 1920	
Article Number:	1920A01364
Title:	Method of Reaching Extreme Altitudes
Document Type:	Journal paper
Author:	R.H. Goddard
Journal:	Nature, vol. 105, p. 809-811,
Publication date:	26 Aug 1920
<p>Abstract: The method is to use a rocket with a multiple charge, employing explosive material of as great energy-content as possible, the exploded material being shot downwards with as high a speed as possible. The propellant must form as great a fraction of the rocket as possible, and this may be achieved by feeding charges from a magazine successively into the same combustion chamber. As the magazine empties itself the above fraction decreases so that for extreme altitudes, in order to secure that at no time during the ascent the fraction shall become small, one or more rockets, copies in miniature of the primary, must be used. Experiments, so far have shown that most of the heat energy of the propellant can be converted into kinetic energy of the ejected gases; that a light multiple charge rocket can be made to fire several charges in succession and travel straight; and that the presence of air is not necessary for the propulsion of the rocket. In an early experiment the velocity of ejection of the gases was nearly 8000 ft. per sec., approximately the "velocity of escape" from the moon. Further experiments are being made, at present in the direction of producing a rocket of small size for employing a large number of charges.</p>	
Controlled Indexing:	measurement; instruments
Uncontrolled Indexing:	altitudes, extreme, method of reaching; measurements and use of instruments
Classification:	General Physics A00
Pricing Options	
There will be three pricing options:	
1)	annual subscription
2)	pay-as-you-go online access
3)	perpetual access
<p>Access Options XML data files are available for direct customers who load Inspec data with their own software. Inspec Vendors will be loading the archive during the latter half of 2004 and early 2005. Inspec will be loading the database on its own server.</p>	
<p>For further information and a price quote please contact your local Inspec office (see back page).</p>	

FORTHCOMING EVENTS	
Visit us at these industry events:	
UK AND REST OF WORLD	
June 2004	
11th International Conference 'Crimea 2004', Sudak, Autonomous Republic of Crimea, Ukraine, June 5th-10th	
COMINFO 2004, Frankfurt, Germany, June 15th-17th	
September 2004	
UKACC Control 2004, Bath, UK, September 6th-9th	
British Vintage Wireless Society (BVWS), Harpenden, UK, Sept 5th	
October 2004	
Frankfurt Book Fair, Germany, October 6th-11th	
National Vintage Communications Fair (NVCF), NEC, Birmingham, UK, October 10th	
3G Mobile Communications Technologies 2004, IEE, Savoy Place, London, UK, October 18th-20th	
RADAR 2004, Toulouse, France, October 19th-21st	
December 2004	
Online Information 2004, Olympia, London, UK, Nov 30th - 2nd December	
THE AMERICAS	
June 2004	
Special Libraries Association - 2004 Annual Conference, Booth 543, Nashville, Tennessee, USA, June 6th-8th	
IEEE 2004 International Microwave Symposium, Ft Worth, Texas, USA, June 8th-10th	
IEEE 2004 Power Engineering Society - 2004 General Meeting, Denver, Colorado, USA, June 6th-10th	
American Society for Engineering Education - 2004 Annual Conference and Exposition, Salt Lake City, Utah, USA, June 20th-23rd	
2004 IEEE AP-S USNC/URSI Symposium, Monterey, California, USA, June 20th-23rd	
American Control Conference 2004 Boston, Massachusetts, USA, June 30th-July 2nd	
November 2004	
Internet Librarian 2004, Monterey, California, USA, November 15th-17th	

Inspec Solves Your Chemical Problems

How do you differentiate between cobalt and carbon monoxide both of which can be represented by the letters co, when search systems are insensitive to the case in which the search term was entered?

Searching for the physical properties and applications of chemical elements and inorganic compounds can be fraught with difficulties. How do you differentiate between cobalt and carbon monoxide both of which can be represented by the letters co, when search systems are insensitive to the case in which the search term was entered? How can you be sure that you have entered all the possible variants of the compound gallium aluminium arsenide as it may appear in words or as molecular formulae? The molecular formulae may be non-stoichiometric but you need to make sure you retrieve all possibilities! How do you search for the elements which have a single character chemical symbol when such a character is also a system operator or command? An example of this is the element sulphur. The chemical symbol is S, but S can also be a proximity operator (sentence or same), or the search (or select) command! How can you retrieve all articles relating to gallium phosphide without retrieving every record containing the word "gap"? How can you be sure that the record that you retrieve is relevant and not just a passing or negative reference to the search terms?

Inspec allows for chemical searching in four ways, namely by:

- Key words from the record title, abstract, and uncontrolled indexing
- Inspec thesaurus subject headings
- Inspec classification codes
- Inspec chemical indexing

Key Word Searching

This is the least precise method for chemical substance retrieval. Be prepared to search by full chemical nomenclature, trivial names, manufacturers' names (brand and trade names), acronyms, and by molecular formulae. Please note that the Inspec database does not standardise spellings so one author may use the spellings sulphur and aluminium whereas another may use sulfur and aluminum. One author may use hyphens between chemically significant groups whereas another may not.

The Inspec Thesaurus

The key word search can be replaced by or supplemented with terms from the Inspec thesaurus. There is a subject heading for every chemical element name, and for the alloys and/or compounds that they form. Many commonly used materials also have their own subject headings. The entry for gallium arsenide can be seen below. Notice that there is a broader term gallium compounds that could be used to retrieve gallium phosphide. When using the Inspec thesaurus subject heading, always check the date of introduction as use of the term may then limit your answer set by date. If a thesaurus term is used within your search, you can be sure that your retrieved records cover that topic specifically rather than only a passing or negative reference. When searching key words their context can not be specified.

Thesaurus Term	gallium arsenide
Used for (UF)	GaAs
Broader Term (s) (BT)	arsenic compounds gallium compounds
Top Term(s) (TT)	inorganic compounds
Date of Introduction (DI)	January 1969

The Inspec Classification

The Inspec database is split into 5 classification sections. The 2 sections in which you will most commonly find chemical information are Section A: Physics and Section B: Electrical and Electronics. The former will commonly deal with the properties of the element or compound, and the latter its applications. Below are a selection of classification codes that can be used to retrieve information relating to III-V semiconductors. When using the Inspec thesaurus subject heading, always check the date of introduction as use of the code may then limit your answer set by date.

A7155G	Impurity and defect levels in II-VI and III-V semiconductors
A7280E	Electrical conductivity of II-VI and III-V semiconductors
A7360L	Electrical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures)
A7840G	Visible and ultraviolet spectra of II-VI and III-V semiconductors
A7855E	Photoluminescence in II-VI and III-V semiconductors
A7865K	Optical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures)
B2520D	II-VI and III-V semiconductors

To retrieve records relating to the electrical conductivity of gallium arsenide, use the subject heading gallium arsenide and the classification code A7280E. To retrieve records relating to the electrical conductivity of gallium phosphide, you could use the subject heading gallium compounds and the classification code A7280E. To make the result more specific, the result could be combined with a key word search, but, as discussed at the beginning, use

of the chemical formula for gallium phosphide would retrieve many irrelevant records. These problems are solved by using Inspec's Chemical Indexing.

Inspec Chemical Indexing

Inspec chemical indexing is a controlled term indexing applied since 1987 to all relevant inorganic substances and systems. Each component of an inorganic substance or system is assigned a role. These roles are:

- element (el) where there is a single component
- binary (bin) where there are two components or
- system (ss) where there are more than two components

The element cobalt is indexed Co/el whereas the compound carbon monoxide is indexed as CO/bin, C/bin, O/bin. Gallium indium phosphide is indexed as GaInP/ss, Ga/ss, In/ss, P/ss. The molecular formula $Al_xGa_{1-x}As$ is indexed as AlGaAs/ss, Al/ss, Ga/ss, As/ss. Inspec chemical indexing solves the problems associated with letter case insensitivity, varied order complications (do you search aluminium gallium arsenide or gallium aluminium arsenide?), non-stoichiometry, the indeterminate nature of some semiconductor materials (i.e. alloy or compound?) and any system command or system operator ambiguity. Therefore to retrieve records entered into the database post-1986 relating to the electrical conductivity of gallium phosphide, use the Inspec classification code A7280E and the chemical indexing Ga/bin linked to P/bin.

In addition, there are four roles indicating the function of the chemical component. These roles are:

- dopant (dop)
- interface system (int)
- surface or substrate (sur)
- adsorbate or sorbate (ads)

Boron-doped silicon would be indexed as Si:B/bin, Si/bin, B/bin, B/dop.

For help in constructing your Inspec search, please contact the Inspec Help Desks. (see back cover)

Inspec Search Aids - New for 2004



Inspec Thesaurus

Each record in the Inspec Database is indexed using controlled terms. The Thesaurus gives further assistance by showing the relationships between terms, dates on which they were added and terms in use before these dates. This new edition contains over 9,000 preferred terms, nearly 700 of which are exclusively for the new Section E.

IPO29C **ISBN** **0-86341-365-X** **£99/\$170**

Inspec List of Journals

An invaluable reference to the serial publications scanned for the Inspec Database. This revised edition includes the 200 journals relevant to Section E with the main list comprising of approximately 4,000 entries sorted under full title.

IPO29B **ISSN** **0264-7508** **ISBN** **0-86341-378-1** **£35/\$60**

Inspec Classification

This publication provides the period of use of each classification entry and, where appropriate, indicates codes that should be used when searching the Database for references prior to that date. An index containing over 5,500 entries forms an integral part of the publication.

IPO29A **ISBN** **0-86341-364-1** **£50/\$85**

Inspec Search Aids Print Package (all 3 publications)

IPO29X **ISBN** **0-86341-370-6** **£140/\$240**



2004 Inspec Search Aids on CD-ROM

A browsable electronic version of the Inspec Thesaurus, Classification and List of Journals. Inspec also offers a Web/Intranet version of the CD-ROM.

Standalone (Windows only)

IPO30 **ISBN** **0-86341-366-8** **£125/\$195**

Network/Site Licence (Windows/Intranet)

IPO31 **ISBN** **0-86341-367-6** **£250/\$395**

For further information regarding system requirements please visit: www.iee.org/publish/support/inspec/document/electronic.cfm

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- Tom Winsor** UK Rail Regulator
- Joe Barrett** Nokia Networks
- Sir David Brown** Chairman, Motorola Ltd
- Nick Winser** CEO, National Grid
- Herman Hauser** Amadeus Capital Partners
- Carol Kovac** IBM Life Sciences
- Prof. Sir Graeme Catto** President, General Medical Council
- Dr Martin Zirngibl** Bell Labs
- David Nasky** Industry Manager, Automotive, Microsoft
- Prof. John Pendry** Imperial College
- Prof. David Payne** Optoelectronics Research Centre, Southampton
- Dr Greg Yurek** President, American Superconductor
- Christoph Berger** Director, Mass Customisation, Adidas-Salomon

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Subscribers can purchase a site licence which will allow unlimited use of the entire IEE.tv archive on a corporate Intranet for 12 months, with the opportunity to add regular updates and live events to enhance the package.

An existing user, Rich Hoeg, Manager, Technical Education & Engineering Information Services, Honeywell International says "Honeywell is excited to be teaming with the IEE. The webinars are an important part of our global approach to innovation and growth."

IEE.tv will give your users up-to-date technical content in a compelling format, direct from Europe's leading engineering professional society.

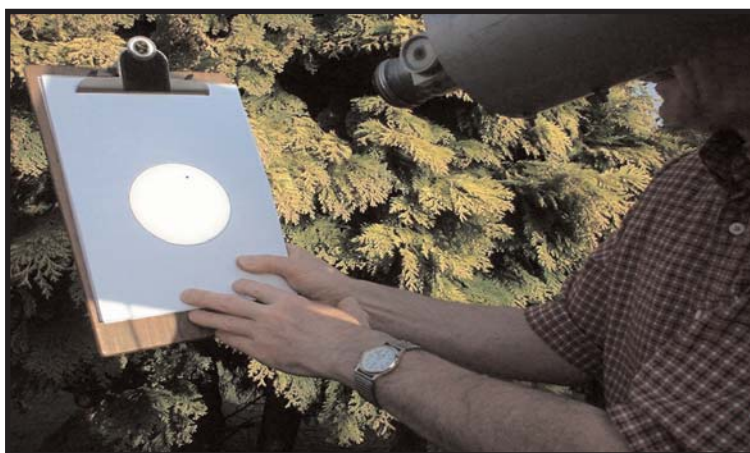
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Transit of Venus on 8th June 2004

Contact times for your location can be found at:
<http://sunearth.gsfc.nasa.gov/eclipse/OH/transit04.html>

Remember those very dark sunglasses you had for observing the last solar eclipse? I hope that you didn't throw them out because they will come in very handy this June to see something that no living human has yet seen, an event much rarer than a total solar eclipse - a transit of Venus!



A demonstration on how to safely view the Transit of Venus

The 2004 event can be viewed in its entirety from Europe, most of Africa, and most of Asia. Australasia and Japan see the start of the transit, most of the Americas see the end of the event.

The whole thing lasts more than six hours

The last such transit of the silhouette of the planet Venus across the Sun's disk occurred in 1882 and only four other transits have ever been recorded as there are no ancient records, even from China (the Chinese were very adept at recording spots on the Sun seen through thin cloud or at low solar elevation). The first sighting of a transit of Venus was by Jeremiah Horrocks (who predicted the event) and his friend William Crabtree in England in 1639.

Transits of Venus come in pairs separated by 8 years (the next will be on 6th June 2012). The famous astronomer Sir Edmund Halley, of comet fame, realised that this event could be a very valuable way of working out exactly how far the Earth is from the Sun. He realised that if one could observe the transit from the southern hemisphere and time the event accurately, it would be possible to

compare the measurements with those made at the numerous northern hemisphere observatories. Using the parallax effect it would then be possible, knowing the baseline, to calculate the Earth-Sun distance and therefore scale the Solar System accurately for the first time by direct observation. Plans were therefore made by the English and French to send teams to far-flung places in order to observe the transit pair of 1761 and 1769. The long voyage of Captain James Cook was basically a transit-viewing expedition to Tahiti. Cook was more successful than others who had crossed the seas to be cheated by cloud or misfortune at the critical time. Many of these adventurers wrote about their travels upon return adding to the mystique of this celestial peculiarity. The transit pair of 1874 and 1882 were photographed and could be measured more accurately.

during which time Venus appears as a very large round black "sunspot" moving slowly across the southern section of the solar disk.

You should be able to spot Venus with your eclipse-viewing spectacles over your eyes. For best effect, use a small telescope or pair of binoculars pointed at the Sun to project its image onto a sheet of white paper held some way away from the eyepiece (it can burn if too close!). **DO NOT LOOK DIRECTLY AT THE SUN - YOU WILL GO BLIND** or burn a hole right through your head if you are silly enough to do it repeatedly. Practise this a few days prior to the event (if it's sunny of course), there's nothing worse than messing about when you could be observing the crucial moment.

However, it is the ingress/egress

of the planet onto/from the Sun's disk that is the thing to look for. It will take only about 20 minutes from the time the planet first touches the Sun's limb (1st contact) until the time when it is totally surrounded by sunlight (2nd contact). Because Venus has a thick atmosphere there is a pronounced refraction effect and the planet appears "reluctant" to venture onto the Sun's disk causing the famous "black drop" effect. The same happens as Venus leaves the Sun's disk (3rd and 4th contacts). It was this unexpected phenomenon that caused considerable problems for those timing the 18th century events. In the UK the show starts at 05.20 (1st contact), 2nd contact is at 05.39, 3rd contact at 11.03 and 4th contact at 11.22 UT (allow for summer time) - just in time for a Champagne lunch to celebrate? If you miss this one there's always 2012 but you will have to move to the Pacific arena to enjoy the full show.

Good observing!

SEARCH TIPS

Information on the Inspec Database dealing with transits can be found using the Thesaurus Term "transits" (introduced in 1993) or the Classification code a9510G. A really "hot topic" at the moment is the photometric detection of Earth-like planets as they transit across the disk of Sun-like stars.

Alerts Partnership for AIP and Inspec...

The American Institute of Physics (AIP) and The IEE (Institution of Electrical Engineers) announce a partnership to provide ScitationSM Alerts powered by Inspec. This service is a current awareness tool for individual researchers and is available this summer.

AIP's classification experts have reviewed the Inspec taxonomy and identified a number of physics-related sub-disciplines that have been added to the alert categories already available through Inspec Alerts.

Scientists may subscribe to alerts from 100 physics-related subject areas. They will receive weekly email updates of new research published in the Inspec Database. Individuals may also subscribe to custom alerts based on their own criteria. Members of AIP member and affiliate societies will receive a discount.

Further information on Scitation Alerts is available at www.scitation.org

Inspec customers will be pleased to know that all 100 new physics-related subject areas will also be available to them. For further information visit our website at: www.iee.org/inspec/currentawareness

Inspec Training Workshops

Did you know that Inspec offers free training sessions tailored especially to your individual needs?

These sessions are aimed to offer support or training to librarians, information specialists and/or end users who wish to make more effective use of the Inspec Database.

The workshops are held in-house at your workplace and offer you the opportunity to network with your colleagues whilst teaching you ways to search the Inspec Database more effectively, cost-efficiently and accurately, hence saving you time.

- Overview of the Database
- Demonstrations illustrating key search elements such as the extensive thesaurus, hierarchical classification and bibliographic fields
- Practical hands-on session where possible

Supporting material is provided which includes a Training Workshop Workbook based on the PowerPoint presentation, and a set of hands-on exercises.

Consortia

Inspec also offers training sessions to university groups or members of a consortium. If you are interested in hosting an Inspec training session please contact one of our Database Trainers at our help desks. (see back cover)

www.iee.org/publish/support/Inspec/training

A typical session includes:

Information Science

- Email alert bulletin

In these busy times there is so much more to do but still the same number of hours in one day.

So, how can you save time on your research yet still keep up-to-date with the latest developments, and which new products and services are just around the corner?

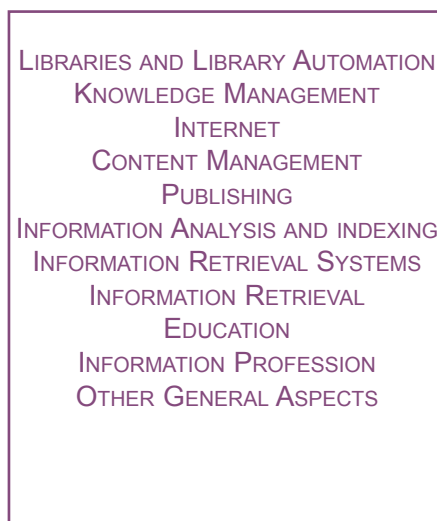
Inspec provides a Subject Update for Information Science that is delivered to your desk top via email on a weekly basis.

Three easy delivery methods:

- 1) Email notification, with a personal web page - full records may be viewed here.
- 2) An email containing a list of titles, with links to the full Inspec records on a personal web page.
- 3) Either of the above with an attached PDF containing the full Inspec record.

Inspec covers over 260 journals in the Information Science area, thus making Inspec a one-stop shop for this subject.

The alert bulletin is arranged for easy viewing in the following categories:



Pricing

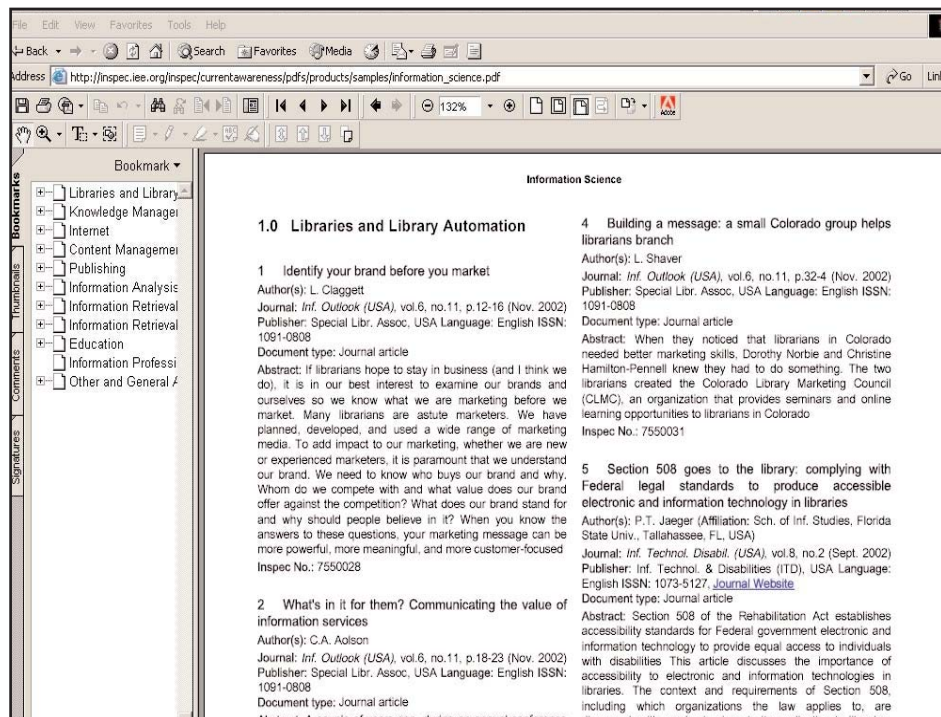
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Inspec Subject Updates

UK/ROW	£185
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To view a free sample PDF visit our website:
www.iee.org/inspec/currentawareness

Subscribing to the Information Science Subject Alert is easy. You can do this at the website by clicking on the subscribe button or send your request by fax or e-mail to your local Inspec office. (see back cover)



NEW! Systems Biology

Editors-in-Chief: Olaf Wolkenhauer, Ravi Iyengar, Walter Kolch, Kwang-Hyun Cho and Ursula Klingmüller

Launching in summer 2004, *Systems Biology* is a new journal from the IEE that will publish high-quality research papers and the most recent news from the rapidly developing field of systems biology.

A major challenge facing scientists today is to make sense of the vast quantity of biological data that has resulted from the sequencing of the human genome. Understanding the organisation and dynamics of the components that make up a living system will enable us, for example, to predict susceptibility to - and ultimately prevent - diseases such as cancer.

Systems biology is an emerging and interdisciplinary subject that aims to understand the complex

validation and this new journal will be of great value and interest to those wishing to further their knowledge in this area of research.

Coverage includes:

- Studies of intra- and inter-cellular dynamics, using systems- and signal-oriented approaches
- Genomics, transcriptomics, proteomics, metabolomics, cells, tissue and the physiome
- Molecular and cellular interactions; gene, cell and protein function
- Networks and pathways
- Metabolism and cell signalling
- Dynamics, regulation and control
- Systems, signals, and information



A prestigious new, peer-reviewed journal from the IEE dedicated to research and news in the exciting field of systems biology.

dynamic interactions between large numbers of genes, transcripts, proteins, metabolites and cells, using modelling and simulation approaches developed and used in applied mathematics and the engineering sciences. Encompassing proteomics, transcriptomics, metabolomics and functional genomics, systems biology uses computational and mathematical models to analyse and simulate networks, pathways and the spatial and temporal relationships that give rise to cause and effect in living systems. Such work is of great importance to a better understanding of disease mechanisms, pharmaceutical drug discovery and drug target

- Experimental data analysis
- Mathematical modelling and theoretical analysis
- Biological modelling, simulation, prediction and control
- Methodologies, databases, tools and simulations

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NEW! Cryptanalysis

The IEE is delighted to announce the launch of *Cryptanalysis*, a new electronic-only, peer-reviewed journal appearing in 2004.

With the ever-growing number of journal and conference articles on cryptography, many new cryptosystems and cryptographic protocols are published every year.

Cryptanalysis is the only journal dedicated to publishing papers that identify significant security flaws in published cryptosystems and in schemes using cryptosystems (e.g. cryptographic protocols). The journal will also include regular authoritative survey papers from world-leading researchers.

ISSN 1743-6818

For further information, please contact the IEE journals department at: journals@iee.org or visit: www.iee.org/journals



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