



DRDO MONOGRAPHS/ SPECIAL PUBLICATIONS SERIES

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Defence Scientific Information and Documentation Centre (DESIDOC) on behalf of Defence Research and Development Organisation (DRDO) brings out a large number of publications covering current developments in Indian Defence R&D.

The DRDO Monographs/Special Publications Series aims at disseminating specialised information covering different aspects of Defence R&D to the readers. Each title of this Series gives in-depth information on a specific subject area, indicating the current and future trends.

Innovative Practices in Product Development

Sh AK Chakrabarti, 2024



21st Century Product Development faces challenges balancing market demands for Faster, Better, Cheaper products with societal and environmental concerns. Developers must consider resource preservation and emerging technologies. Deep-Tech categorises evaluation into innovative current tech and emerging tech design. Balancing these ensures market sustainability. Extensive research since the mid-20th century established a philosophical foundation for technology's societal benefit. This book aims to enlighten developers on historical and philosophical perspectives, compiling modern methodologies and techniques. It elaborates process steps in a sequence, named as Define-Configure-Connect-Design (DCCD). Certain essential aspects like uncertainty analysis, risk assessment and mitigation, failure analysis and forecasting are included. A set of modern quality tools is also presented.

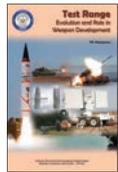
Price: ₹ 2500/\$50/£40

Test Range: Evolution and Role in Weapon Development

Sh PK Mahapatra, 2023

This monograph comprehensively introduces weapons, covering types, complexities, delivery, propulsion, safety, reliability, life cycle, performance, and impact. Exploring ideal range attributes, it employs qualitative and quantitative methods, delving into infrastructure and the Proof & Experimental Establishment (PXE). Supported by visuals, it serves as a valuable resource for scientists, engineers, and defence professionals, offering insights into weapon critical aspects and their interconnectedness in safeguarding national defence.

Price: ₹ 2900/\$53/£44



High-Temperature Materials for Gas Turbine Applications

Dr Debashis Mukherji, 2023



The monograph explores gas turbine materials, focusing on Ti-alloys and Ni-superalloys. It delves into the historical context of turbine development, basic principles of jet propulsion, and material science. The primary focus is on high-temperature gas turbine materials—covering manufacturing from alloy to components, development, and applications. Although fundamentally a material science book, its broad relevance extends to both material scientists and mechanical/aeronautical engineers engaged in gas turbine development and maintenance, owing to the complexity and wide appeal of gas turbines.

Price: ₹ 1800/\$36/£31

Non-Destructive Evaluation of Solid Rockets and Missiles Systems

Sh K Viswanathan and Sh PV Sai Suryanarayana, 2023

This monograph highlights the crucial role of Non-Destructive Evaluation (NDE) in ensuring the quality of engineering products, particularly rockets and missiles. Given their strategic importance, stringent NDE methods are applied throughout their manufacture. The lack of published standards in the NDE area of Solid Rocket/Missile motors poses challenges in production. The authors, drawing from their experience, present a structured overview covering conventional and advanced NDE methods, emphasising practical aspects for shop-floor engineers, making it a valuable resource for NDE practitioners.

Price: ₹ 1450/\$30/£25



Infrared Signatures, Sensors and Technologies

Dr Kamal Nain Chopra, 2023



This monograph addresses the pressing need for consolidated literature on the topic "Infrared Signatures, Sensors, and Technologies." It comprehensively covers various aspects, including Infrared Spectrum, Sensors, Deceiving Technologies, Analysis of Signatures, and Countermeasures. With in-depth discussions on IR Threats, Radar Technology, and IR Seekers, it serves as a valuable resource for scientists, researchers, and academicians. By presenting diverse elements in one place, the monograph aids in bridging gaps between research papers, making it especially beneficial for designers, engineers, and aspiring researchers in the field of infrared devices and sensors.

Price: ₹ 1000/\$25/£20

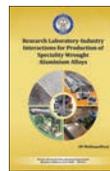
Research Laboratory-Industry Interactions for Production of Speciality Wrought Aluminium

Dr Ashim Kumar Mukhopadhyay, 2022

This monograph discusses first the fundamental basis of aluminium alloy design with emphasis on the role of major and minor alloying elements, the influence of impurities, and the effects of variations in thermo-mechanical processes and heat treatment tempers on the development of microstructure and desired engineering properties in such alloys.

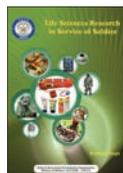
It also describes the efforts and achievements made by Defence Metallurgical Research Laboratory (DMRL) on the technology development and the industrial scale production of lithium-free speciality wrought aluminium alloys using the existing infrastructure in the country for crucial defence applications. It also catalogues the major investments made by private and government agencies during the last two decades and outlines areas of opportunity to improve and create optimal infrastructure to provide a complete solution to the manufacture of speciality wrought aluminium alloys in required semi-product forms.

Price: ₹ 1700/\$35/£33



Life Sciences Research in Service of Soldier

Prof Brahma Singh, 2022



This monograph covers R&D of DRDO Life Science CLUSTER of Laboratories namely Defence Bio-Engineering & Electro Medical Laboratory (DEBEL); Defence Institute of Bio-Energy Research (DIBER); Defence Food Research Laboratory (DFRL); Defence Institute of High-Altitude Research (DIHAR); Defence Institute of Physiology & Allied Sciences (DIPAS); Defence Institute of Psychological Research (DIPR); Defence Research Laboratory (DRL); Institute of Nuclear Medicine & Allied Sciences (INMAS); Defence Research & Development Establishment (DRDE); Defence Institute of Psychological Research (DIPR) and their significant achievements in research upon various aspects of human (soldier) life to improve the logistics leading to not only for better quality of life and better fighting performance but

helping him/her to remain in fighting fit mode always particularly in difficult terrain, adverse environment and other adversaries on ground (Army), in water (Navy) and in air (Air Force) and allied services (at borders).

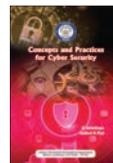
Price: ₹ 2100/\$45/£40

Concepts and Practices for Cyber Security

Dr G Athithan and Dr Saibal K Pal, 2022

The monograph starts with the basic concepts behind the development and operation of information systems. It highlights threats to information systems and provides guidelines for formulation of cyber security policies and the means for their implementation and operation. Incorporating cyber security during the many stages of a system development cycle is also given with discussion on applicable standards. It also gives an overview of the emerging domain of quantum information technology and its impact on cyber security.

Price: ₹ 1500/\$35/£30



Biology, Diagnosis and Management of Indian Pestiferous Blackflies

Dr Vijay Veer, 2022



This monograph is about the blackflies which are well known for their biting nuisance and disease transmission and considered second as the most harmful group of insects after the mosquitoes in affecting the human and animal health. This monograph provides summarised and update information on biology, diagnosis, pest status and management of the Indian blackflies. The emphasis has been made on blackflies of northeast India. Three species namely, *S. himalayense*, *S. indicum* and *S. nodosum* are reported as highly anthrophilic. The chapters deal with biology, collection of blackflies and their preparation, preservation and rearing for species diagnosis by using morphological, cytotaxonomical and molecular characters. Identification keys for 73 Indian

species are also given.

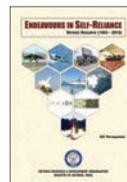
Price: ₹ 1500/\$35/£30

Endeavours in Self-Reliance: Defence Research (1983–2018)

Dr KG Narayanan, 2022

This special publication is the successor volume of the book 'Defence Research & Development Organisation (1956-1982)'. In this book a historical account of Defence Research and Development in India is presented covering the period 1983–2018 which were decades of explosive growth and achievements, expectations and challenges. Hundreds of development projects were completed covering every aspect of defence requirement. This chronicle describes the huge efforts made by the establishments under the aegis of the Department of Defence R&D, based on the reports and descriptions rendered by the laboratories and by major contributors who participated in the vast national endeavour.

Price: ₹ 2100/\$75/£65





Introduction to Explosive Reactive Armour

Dr Harpal Singh Yadav, 2022

This monograph describes the basic functioning of Explosive Reactive Armour (ERA) and the fundamentals of explosion dynamics and shock wave which are relevant and necessary to understand the basic mechanism of ERA. The main aim of this monograph is to make available all the important topics of explosion dynamics at one place to save time and effort for new scientists entering armament research and also for those who are already working in this field.

Price: ₹ 900/\$27/£25

Systems Engineering Towards Self-Reliance

Shri S Varadarajan, 2021

This monograph describes the best systems engineering practices during the development of any complex system in general and defence system in particular. It addresses practical issues towards new product development leveraging contemporary technology. The case studies are brought out of real systems developed successfully for the Armed Forces. The simplified treatment should enable the user, acquisition, development, inspection, manufacturing and field deploying agencies to exploit the past experience and be successful in highly demanding circumstances.

Price: ₹ 1700, US \$ 45, UK £ 40



Radiance in Indian Skies The Tejas Saga

Air Marshal P Rajkumar and Shri BR Srikanth, 2021

Development of the Tejas fighter aircraft was independent India's most ambitious aeronautical project. This book is about the inspiring journey of the Tejas from concept to entry into squadron service. A must read book for all Indians.

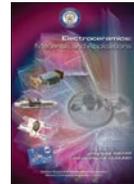
Price: ₹ 1400/\$60/£50

Electroceramics: Materials and Applications

Dr Pran Kishan and Dr Chandra Prakash, 2021

Electroceramics are essential components of all sorts of devices and systems used in everyday life or in space or defence applications. This monograph provides some basic introduction to the subject of 'Electroceramic Materials and their Applications'. A brief but essential combination of its basic science, technology, description of various types of materials and also some recent salient advancements have been described.

Price: ₹ 1150/\$30/£28



Issues on Development of Communication Technology Using Orbiting Satellites

Shri AD Mitra, 2020

This monograph discusses the issues on the development of a communication system based on LEO satellites and provides the background to initiate the developmental efforts.

Price: ₹ 1100/\$30/£27

Digital Flight Control Systems for Practising Engineers

Shri PS Krishnan and Dr KG Narayanan, 2020

This monograph is a fascinating account of the journey made by Aeronautical Development Establishment (ADE), Bengaluru from its first analog automatic flight control system for an air launched drone (1974) to sophisticated digital Flight Control System (FCS) for the fly-by-wire supersonic fighter (2001) and to the autonomous low-level cruise platform (2013). This monograph would help the future entrants to flight control R&D programmes to adapt themselves to their roles more easily.

Price: ₹ 2080/\$60/£50





Plastics in Armaments

Shri RB Marathe, 2020

The monograph presents a perfect blend between the introduction to what really the plastics are, their structure/property relationship, production technologies, quality control & assurance and other topics like testing and shelf life.

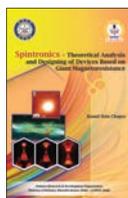
Price: ₹ 1380/\$45/£36

Ultrahigh Strength, High Fracture Toughness Low-alloy Steel: DMR-1700

Dr G Malakondaiah and Dr P Rama Rao, 2019

This monograph describes the more than three decades of R&D work that led to the research-based development of a new ultrahigh strength low-alloy steel, designated DMR-1700, its production and its defence applications.

Price: ₹ 1050/\$50/£40



Spintronics - Theoretical Analysis and Designing of Devices Based on Giant Magnetoresistance

Prof Kamal Nain Chopra, 2019

In this monograph, the basic principles of the generation of carrier spin polarisation, spin dynamics, and spin-polarised transport have been discussed. Various concepts discussed include spin transfer, spin transfer torque, spin-pumping force and spin currents, tunneling anisotropic magnetoresistance, and tunnel magnetoresistance in semiconductor magnetic tunnel junction, spin-dependent magnetoresistance in all-semiconductor heterostructure, and magnetic-induced and current-induced switching. Applications of spintronics in various fields including research and quantum computers, and the fabrication of the spintronics devices have also been described at length.

Price: ₹ 1040/\$28/£26

विस्फोटकों में रासायनिक विषाक्तता: परिमाणन, प्रभाव मूल्यांकन एवं सुरक्षा
डॉ त्रिभुवननाथ उपाध्याय, 2019

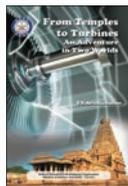
उच्च ऊर्जा पदार्थों का उपयोग विस्फोटकों के रूप में किया जाता है। सेना और सिविल क्षेत्रों में इनका उपयोग समानरूप से होता है। प्रस्तुत मोनोग्राफ में विभिन्न उच्च ऊर्जा पदार्थों का विस्फोटकों के रूप में उपयोग, उनकी विषाक्तता, विषाक्तता परिमाणन, मानव शरीर पर पड़ने वाले प्रभावों के मूल्यांकन, उनके द्वारा पर्यावरण पर पड़ने वाले प्रभावों के मूल्यांकन तथा इनसे बचाव के लिए उपयोग में आने वाले विभिन्न सुरक्षात्मक यंत्रोपकरणों के विषय में विस्तार से वर्णन किया गया है।

Price : ₹ 950/\$27/£ 25



From Temples to Turbines An Adventure in Two Worlds

Dr VS Arunachalam, 2019



Through this monograph, the author discussed his experience of four decades in integrating science and technology as anecdotes. Most of these are drawn from defence research organisations as they are rich in tales, from a mechanic developing diminutive magnets that revolutionised the design of a machine gun to an impressive consortium of scientists and engineers designing and building a modern fighter aircraft. There are also stories of Indian leaders in science and to hear of their achievements; for history gets written through such anecdotes.

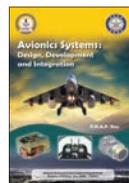
Price: ₹ 800/\$25/£24

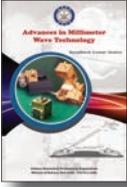
Avionics Systems: Design, Developments and Integration

Shri PNP Rao, 2019

This monograph deals with the subject of avionics systems of both fighter aircraft and civil aircraft. It covers topics such as avionics system functionalities, subsystems, system design, speciality engineering topics, integration, testing and certification of avionics systems, and many more.

Price: ₹ 1260/\$33/£30





Advances in Millimeter Wave Technology

Shri Awadhesh Kumar Shukla, 2019

This monograph explores the design and implementation of millimeter (mm) wave active/passive circuits and systems using waveguide/MMIC (Monolithic Microwave Integrated Circuit) and planar waveguide technology. It also discusses future trends and technology challenges which enlighten about exploitation and challenges of millimeter wave frequency spectrum in futuristic military applications.

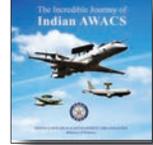
Price: ₹ 1340/\$32/£29

The Incredible Journey of Indian AWACS

Dr K Ramchand; Dr S Krishnasamy and Shri BR Srikanth, 2019

This monograph chronicles the enthusiasm and excitement of the relentless pursuit, which ultimately resulted in India's entry into the exclusive league of nations with a capability to design, develop, and fly the Indian Airborne Early Warning & Control (AEW&C) system.

Price: ₹ 1100/\$31/£24



सूक्ष्मतरंग और मिलीमीटर-तरंग निर्वात इलेक्ट्रॉनिक युक्तियां एवं सम्बंधित तथ्य डॉ विशाल केशरी, 2018

इस पुस्तक में सूक्ष्मतरंग और मिलीमीटर-तरंग निर्वात इलेक्ट्रॉनिक युक्तियों से सम्बंधित कुछ तथ्यों को उजागर किया गया है। सम्पूर्ण पुस्तक को कुल पांच अध्यायों में वर्गीकृत किया गया है। प्रथम अध्याय में सूक्ष्मतरंग नलिकाओं और इनके उप-संयोजकों और इनके उपयोगों पर चर्चा की गई है। द्वितीय अध्याय में दोस-अवस्था के शक्तिप्रवर्धक और छोटी चल-तरंग नलिका के प्रवर्धन योग पर बने सूक्ष्मतरंग-शक्ति-प्रतिरूपक पर चर्चा की गई है। तृतीय अध्याय में पारंपरिक सूक्ष्मतरंग नलिकाओं से अलग नई पीढ़ी की जाइरो नलिकाओं को स्थान दिया गया है। इस अध्याय में जाइरो-युक्तियों का भारत में विकास प्रस्तुत किया गया है। चतुर्थ अध्याय में जाइरो श्रेणी के साइक्लोट्रॉन रिजोनेन्स मेजर पर चर्चा की गई है। इसमें दो जाइरो स्त्रोतों: जाइरो-पिनियोट्रॉन व जाइरोट्रॉन की एक दूसरे से तुलना की गई है। पंचम अध्याय में जाइरो श्रेणी के एक प्रवर्धक-जाइरो चल-तरंग नलिका के प्रसंग में चर्चा की गई है।

Price : ₹ 330/\$16/£ 17

Unconventional Lasers: Design and Technical Analysis

Prof Kamal Nain Chopra, 2018

In this monograph, nearly all types of unconventional lasers including x-ray free-electron lasers, GaSb-based type-I diode lasers, photonic crystal-based lasers, phase conjugated lasers, quantum cascade lasers, and diode pumped fiber lasers, have been covered. These lasers have many useful applications in various fields like industry, surgery, biology, and novel imaging techniques, apart from their usage in practical research applications in most of the scientific and engineering topics. Technical analysis of the theoretical aspects of lasers with modeling and designing considerations for maximising efficiency of these lasers are discussed.

Price: ₹ 1000/\$31/£22



Image Processing and Computer Vision Algorithms for Defence Research

Dr Jharna Majumdar, 2017

This monograph covers the basic theories and concepts of digital image processing coupled to variety of algorithms to process, analyse, and interpret imagery. It elaborates on image enhancement techniques, histogram equalisation and adaptive enhancement, spatial filters, image restoration and adaptive filters, edge and line detection techniques, and image segmentation. Various quality metrics for image processing algorithms are also provided along with hardware implementation of

image processing algorithms.

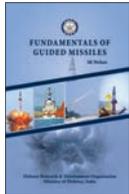
Price: ₹ 1400/\$38/£29

Composite Armour Materials and Modules

Dr T Balakrishna Bhat and Dr Vemuri Madhu, 2017

This monograph describes an overview of the general principles of armour design, ballistic testing standards for composites, an introduction into ceramic and polymer materials, their processing and design concepts related to their use in developing practical armour systems. Chapters have been devoted specific to design of armours against small, medium, and large calibre threats. Material responses to high strain rate loading conditions and their utility in simulations have been discussed.

Price: ₹ 1000/\$20/£17



Fundamentals of Guided Missiles

Rear Admiral SR Mohan, 2016

This publication is intended to provide an understanding of the different parts and their interaction in making up a Guided Missile system. The chapters cover subjects like Aerodynamics, Control engineering, Propulsion, Flight Control, Missile Kinematics, Radar, Infrared, Guidance and Warheads starting from basics to a reasonable depth, so that the engineers/scientists can take part in meaningful technical discussions on Guided Missile systems.

Price: ₹ 1000/\$90/£64

Airworthiness Certification of Fighter Aircraft

Shri K Nagaraj, 2015

This monograph fills a very important niche in the broad spectrum of activities between design/development and release to service of a military fighter aircraft. The book is the outcome of decades of hands-on experience of the author in the design evaluation of the aircraft and its systems for safety and performance parameters, and in implementing the process of airworthiness certification of a variety of fighter aircraft, engines, systems, software and hardware. It gives the casual reader a glimpse of airworthiness certification activities, and to the practitioner, a detailed exposure to this complex subject.

Price: ₹ 550/\$60/£40



Investment Casting: A Treasure Trove

Dr AM Sriramamurthy, 2015

This monograph provides a comprehensive description of this highly specialised technology developed indigenously in Defence Metallurgical Research Laboratory (DMRL), through the research efforts of numerous scientists over a period of three decades. It also covers some of the innovations that led to the indigenous design and fabrication of major/critical tools and equipments, thus making the technologies developed comprehensive and helping achieve a high level of self-reliance.

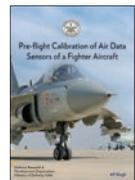
Price: ₹ 1300/\$60/£40

Pre-flight Calibration of Airdata Sensors of a Fighter Aircraft

Dr KP Singh, 2014

This monograph presents the latest tools and methods for pre-flight calibration of air data sensors of a fighter aircraft. A generic aircraft designed and developed at Aeronautical Development Agency (ADA), Bengaluru is used as a typical case in the study. Though the procedure highlighted here is for a generic fighter aircraft of ADA, it is highly applicable and adaptable for any fighter aircraft programme and will serve as a future guideline for engineers and scientists.

Price: ₹ 325/\$35/£25





Unmanned Aircraft Systems: A Global View

Shri J Jayaraman, 2014

This monograph provides a bird's-eye view of the complex technology of Unmanned Aerial Vehicles (UAVs). It is targeted towards a wider audience that includes, beginners who need an introduction to the subject; practicing specialist engineers who need to learn about other disciplines; and programme managers, bureaucrats, planners and policy makers who would like to get a holistic picture of the UAV technology. It provides an approach to the system engineering methodology for the

initial sizing of an UAV.

Price: ₹ 700/\$75/£50

Evolution of Solid Propellant Rockets in India

Shri Rajaram Nagappa, 2014

Propulsion forms a major subsystem of the space launch vehicles and missiles, and today, India boasts of a significant capability and capacity in this discipline. The solid propellant rocket technology in India is essentially home-grown and has found wide application and adaptation in sounding rockets, launch vehicles, and ballistic missiles. This book highlights the development of solid propellant rockets and the main solid rocket subsystems used in the space programme and ballistic missiles with emphasis on the indigenous nature of development.

Price: ₹ 330/\$37/£25



Sonar System Design: A Practical Designer's Guide

Shri SP Pillai, 2013

The monograph is a practical designer's guide that is carefully structured to cover various aspects of sonar design. It includes signal design, spatial and temporal processing, parameter estimation, normalisation and data fusion, optimum estimator, various normalisation schemes, and applications of under water acoustic.

Price: ₹ 270/\$35/£25

Laser in Bioscience, Industry, and Defence

Shri Narain Mansharamani, 2012

Laser basics, laser beam propagation, and most important cost-effective laser applications in bioscience, industry, and defence are the contents of this monograph. Its use in bioscience for painless refractive and general surgery as well as its future applications in preventing infectious and virus diseases is discussed. In industry, it covers marking, cladding, ultraviolet lithography, and diamond processing. In defence, it covers the use of laser in underwater application and uranium enrichment with efficient infrared lasers and possible clean energy by controlled nuclear fusion.

Price: ₹ 300/\$30/£20



High Power Lasers – Directed Energy Weapons Impact on Defence and Security

Prof Amitav Mallik, 2012

High Power Laser (HPL) has emerged as one of the very promising technologies that will have major impact on defence and security in the future. The Directed Energy Weapon (DEW) with its unique features is clearly the new generation weapon that will transform the concepts of defence and deterrence.

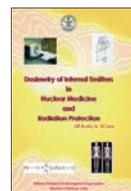
Price: ₹ 270/\$35/£25

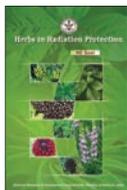
Dosimetry of Internal Emitters in Nuclear Medicine and Radiation Protection

Dr AR Reddy & Dr SC Jain, 2011

This book provides comprehensive information on nuclear medicine and radiological safety. It covers basics and advanced topics. Formulation of Reference Indian Adult and its mathematical description as well as dose estimations in different diagnostic nuclear medicine investigations applicable are included. Dose reconstruction, retrospective dose estimation, and decontamination and decorporation of internal contaminations in cases of radiation emergencies are also presented.

Price: ₹ 450/\$55/£40





Herbs in Radiation Protection

Dr HC Goel, 2011

This monograph provides an overview on radiation biology and radiation protection. Part I describes the basic concepts about radiation, their interaction with matter and especially biomolecules, mechanism of radiation injuries. Part II describes radio-protective and radio-therapeutic attributes of different plants. The application of each plant for treating various ailments described in 'Charak Samhita' and scientific literature is enumerated.

Price: ₹ 450/\$55/£40

Thin Films and their Applications in Military and Civil Sectors

Dr KN Chopra & Shri AK Maini, 2010

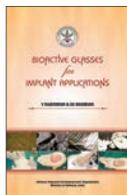
This monograph provides an overview of the design and development of thin films and the deposition techniques for various applications. The book is aimed at creating awareness about the applications of thin films in military and civil sectors, which are classified as scientific, industrial, and consumer. It also provides an overview of the R&D efforts of Laser Science and Technology Centre in the area of thin films.

Price: ₹ 200/\$30/£20



Bioactive Glasses for Implant Applications

Dr V Rajendran & Dr SK Bhandari, 2010



This monograph provides an overview of the principle, development and practice of bioactive glasses for biomedical applications. It deals with the structure and properties of biomaterials, various methods used for the synthesis of bioactive glasses, and characterisation techniques along with optimisation studies. It also provides different applications of bioactive glasses and glass ceramics with practical illustrative applications in various disciplines of surgery.

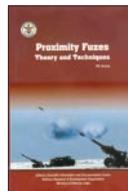
Price: ₹ 260/\$35/£25

Proximity Fuzes: Theory and Techniques

Shri VK Arora, 2010

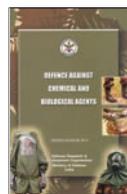
This book provides an overview of proximity fuzes covering theoretical, experimental, and engineering aspects of RF Doppler proximity fuzes. In-depth analysis and design of crucial subsystem of proximity fuzes are given special importance. It covers advances based on microwave FM/CW systems and laser proximity fuzes. The instrumentation aspects of proximity fuzes are given due attention. The book also covers ECM and ECCM of proximity fuzes.

Price: ₹ 300/\$45/£30



Defence Against Chemical and Biological Agents

Dr AK Sen, 2009



This book is aimed at creating general awareness of the effect of chemical and biological warfare and various means of protection. It consists of nine chapters and the vast list of topics include: chemical warfare agents, their classes, physiological effect on human beings, pretreatment and therapy, potential biological warfare agents, the disease they produce and delivery, different techniques of decontamination systems, protection, detectors used in battlefield to warn soldiers in the battlefield, as well as civilians of an impending attack, and test methods for protection clothing.

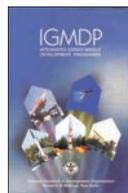
Price: ₹ 220/\$28/£20

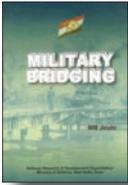
Integrated Guided Missile Development Programme

DRDO, 2008

This book chronicles the genesis, progress and current status of development of the state-of-the-art guided missiles under the Integrated Guided Missile Development Programme (IGMDP). It emphasises the need for realistic assessment of the technical expertise, manpower, cost, and time and the gains accrued to the country.

Price: ₹ 670/\$100/£50





Military Bridging

Shri MR Joshi, 2008

This monograph covers the gap that has somehow crept in over the years between the acquisition of different types of combat engineer equipment and availability of comprehensive reference material that can establish a relationship between different equipment. This book intends to help the user in selection process of equipment for bridging in a non-traditional manner.

Price: ₹ 385/\$60/£30

Acousto-optics Devices and their Defence Applications

Shri JC Joshi, 2007

The book presents theory, fabrication, characterisation techniques, and applications of the acousto-optic devices. It is written with a view to help a beginner who wants to enter in this field, but is not aware where to start and search in the vast available literature. The applications of acousto-optic which have direct relevance with the defence equipment technology devices have also been given in detail.

Price: ₹ 410/\$60/£30



Reminiscences of a Defence Scientist: A Quest for Self-Reliance

Shri V Narayana Rao, 2007

This monograph provides an author's insight into one of the key defence technologies, viz., electronic warfare. He starts from early reminiscences of his education in India and UK, and his experience as a lecturer, then as Director of NPOL, Kochi and finally as Director, DLRL, Hyderabad. All through the book, he narrates his efforts as a team leader in the development and progression of various high-tech systems and achieving self-sufficiency for the Indian Armed Forces.

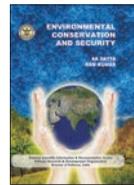
Price: ₹ 375/\$55/£30

Environmental Conservation and Security

Dr AK Datta & Dr Ram Kumar, 2006

The book presents collection, collation, and analysis of a broad range of environment-related issues concerning the global community with special emphasis on topics like environmental security, international environmental standards, remediation of contaminated sites, and important international environmental agreements.

Price: ₹ 500/\$35/£20



Infrared Detectors: Materials and Technology

Dr AK Sreedhar & Dr KSR Koteswara Rao, 2006

This monograph deals with the physics and technology of infrared detectors with special focus on defence applications. New material technologies like MBE, laser ablation, and MOCVD used to fabricate detector structures are also discussed. Special subsystems such as cooling devices, which are an integral part of infrared sensor are explained.

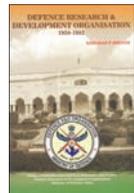
Price: ₹ 300/\$30/£15

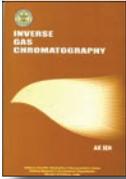
Defence Research & Development Organisation 1958-1982

Dr Ramadas P Shenoy, 2005

This book is an authentic description of development of Defence R&D in India. It traces the origin of military research, its need under British rule in India in early 20th century, the R&D done during two world wars, the independent India, and defence strategy at that time. It describes the inception of Defence Research Organisation, appointment of first Scientific Adviser, and evolution of separate Defence Research and Development Organisation catering to the needs of Armed Forces in India. It also highlights the development of labs, R&D activities and technological progress attained till 1982.

Price: ₹ 500/\$30/£20





Inverse Gas Chromatography

Dr AK Sen, 2005

Inverse gas chromatography is a useful technique for characterising solid materials including polymers, copolymers, polymer blends, carbon, silica, pharmaceutical powders, cellulosic materials, etc. The technique involves creating within a column, a stationary phase of the solid material of interest and determining its physico-chemical properties.

Price: ₹ 400/\$26/£16

Microwave Circuits and Components

Prof GP Srivastava, 2004

In this book, an attempt has been made to clarify the fundamental concepts on microwaves. It lays emphasis on transmission lines, scattering matrix and network modelling. Smith chart and its application in microwave circuits has been discussed. The essential features of computer-aided design (CAD) of microwave circuits have been described. Some packages of CAD have also been explained.

Price: ₹ 700/\$50/£30



Aerodynamic Predictive Methods and their Validation in Hypersonic Flows

Dr AK Sreekanth, 2002

This monograph presents a summary of engineering methods most commonly employed for preliminary aerodynamic analysis of bodies travelling at hypersonic speeds. The work is divided into three parts: Part I deals with predictive methodology, Part II covers validation of predictive methods, and Part III covers the aerodynamics of rarefied gases.

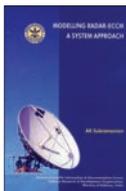
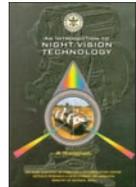
Price: ₹ 400/\$25/£15

An Introduction to Night Vision Technology

Shri R Hradaynath, 2002

This monograph is intended to familiarise a reader with the relevant factors and technologies that lead to the development of a night vision system based on image intensification in the visible and the near-infrared regions of the electromagnetic spectrum. The first four chapters discuss the human and external limitations due to restriction of human observation imposed by the environment and night illumination conditions besides the ability to search and acquisition. The rest of chapters are devoted to optical, material, and electro-optical technologies.

Price: ₹ 270/\$18/£13



Modelling Radar ECCM: A System Approach

Dr AK Subramanian, 2003

This monograph presents material devoted to the art of radar electronic counter countermeasure (ECCM). Modern electronic warfare encounters are very devastating and are terminal in deciding the course of a major conflict. The book uses modelling and simulation tools for radar ECCM and gives various factors to be considered for countering ECM threats.

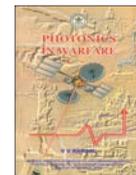
Price: ₹ 180/\$12/£8

Photonics in Warfare

Dr VV Rampal, 2002

The challenges and opportunities provided by photonic technology in future wars cannot be overlooked. This book presents an integrated view of the present and potential applications of optical radiation, including infrared, in a war scenario. It is intended to serve as a treatise on the development of photonics-based weapons and instrumentation. The book serves as source book to researchers in scientific laboratories, training institutions and other organisations.

Price: ₹ 450/\$30/£20





Environment in Submarines

Dr MVR Koteswara Rao, 2001

The monograph on 'Environment in Submarines' is the first of its kind in the field of environmental sciences relating to closed spaces. The author has pictured the actual conditions prevailing in the submarine and also dealt with a variety of problems faced by its habitants, besides offering solutions to ensure a safer environment. This monograph serves as a source book for scientists, naval personnel and marine engineers.

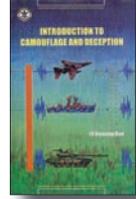
Price: ₹ 200/\$13/£10

Introduction to Camouflage and Deception

Shri JV Ramana Rao, 1999

Camouflage and deception is a military science subject mainly of classified nature. The book covers the subject comprehensively, starting from its historical development and moving to discussions on camouflage in nature visual, infrared and microwave region. The state-of-the-art in stealth technology and the contribution of DRDO in this area are also outlined.

Price: ₹ 400/\$30/£17



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