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Photodiode Amplifiers: OP AMP Solutions Balanced Phono-Amps Cisco Next-Generation Security Solutions Methods of Biochemical Analysis Basic Engineering Circuit Analysis The Analysis and Design of Linear Circuits The Analysis and Design of Linear Circuits Analysis of Reactor Fuel Element Solutions Operational Amplifiers and Their Applications Op Amps for Everyone Gas Capture Processes Op Amps for Everyone Circuit Analysis and Feedback Amplifier Theory Digital Science Blockchain and Applications, 5th International Congress Deadenylation Orchestrating and Automating Security for the Internet of Things Inorganic Ion Exchangers in Chemical Analysis Brief Introduction to Circuit Analysis with Circui T Solutions Set An Analog Electronics Companion Circuits at the Nanoscale Groundwater Chemicals Desk Reference Fundamentals Quality of Life Through Quality of Information Post-combustion CO2 Capture Technology Electronics MEMS The Chemical News Gas Treating Photoplethysmography Higher Electronics Modern Methods for the Separation of Rarer Metal Ions Mineral solubilizing microorganisms (MSM) and their applications in nutrient availability, weathering and bioremediation Fundamentals of Electronics LED Lighting Amp Up Your Sales Sustainable Agriculture Reviews 38 Advances in Carbon Capture Microfilm Index; Summary Technical Report of NDRC. Photodiodes

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Circuits for Emerging Technologies Beyond CMOS New exciting opportunities are abounding in the field of body area networks, wireless communications, data networking, and optical imaging. In response to these developments, top-notch international experts in industry and academia present Circuits at the Nanoscale: Communications, Imaging, and Sensing. This volume, unique in both its scope and its focus, addresses the state-of-the-art in integrated circuit design in the context of emerging systems. A must for anyone serious about circuit design for future technologies, this book discusses emerging materials that can take system performance beyond standard CMOS. These include Silicon on Insulator (SOI), Silicon Germanium (SiGe), and Indium Phosphide (InP). Three-dimensional CMOS integration and co-integration with Microelectromechanical (MEMS) technology and radiation sensors are described as well. Topics in the book are divided into comprehensive sections on emerging design techniques, mixed-signal CMOS circuits, circuits for communications, and circuits for imaging and sensing. Dr. Krzysztof Iniewski is a director at CMOS Emerging Technologies, Inc., a consulting company in Vancouver, British Columbia. His current research interests are in VLSI circuits for medical applications. He has published over 100 research papers in international journals and conferences, and he holds 18 international patents granted in the United States, Canada, France, Germany, and Japan. In this volume, he has assembled the contributions of over 60 world-reknown experts who are at the top of their field in the world of circuit design, advancing the bank of knowledge for all who work in this exciting and burgeoning area. Biochemical analysis is a rapidly expanding field and is a key component of modern drug discovery and research. Methods of Biochemical Analysis provides a periodic and authoritative review of the latest achievements in biochemical analysis. Founded in 1954 by Professor David Glick, Methods of Biochemical Analysis provides a timely review of the latest developments in the field. This book presents the design, analysis and testing of fully balanced RIAA phono amps and measurement tools. The content of this book extends a standard reference about RIAA phono amps "the sound of silence" by Burkhard Vogel. Here, the gap is filled between a semi-balanced engine (RIAA Phono-Amp Engine I) and a fully balanced engine, the RIAA Phono-Amp Engine II. In this new book on hand, "fully balanced" means that each phono-amp stage ends up in a balanced - or in other words symmetrical - solution, differentially amplified. Un-balanced / single-ended solutions are not in the scope. Gas Treating: Absorption Theory and Practice provides an introduction to the treatment of natural gas, synthesis gas and flue gas, addressing why it is necessary and the challenges involved.

The book concentrates in particular on the absorption-desorption process and mass transfer coupled with chemical reaction. Following a general introduction to gas treatment, the chemistry of CO₂, H₂S and amine systems is described, and selected topics from physical chemistry with relevance to gas treating are presented. Thereafter the absorption process is discussed in detail, column hardware is explained and the traditional mass transfer model mechanisms are presented together with mass transfer correlations. This is followed by the central point of the text in which mass transfer is combined with chemical reaction, highlighting the associated possibilities and problems. Experimental techniques, data analysis and modelling are covered, and the book concludes with a discussion on various process elements which are important in the absorption-desorption process, but are often neglected in its treatment. These include heat exchange, solution management, process flowsheet variations, choice of materials and degradation of absorbents. The text is rounded off with an overview of the current state of research in this field and a discussion of real-world applications. This book is a practical introduction to gas treating for practicing process engineers and chemical engineers working on purification technologies and gas treatment, in particular, those working on CO₂ abatement processes, as well as post-graduate students in process engineering, chemical engineering and chemistry. This volume provides new approaches and technologies into roles of poly(A) metabolism in translation, RNA stability, and quality control of gene expression. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and key tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Deadenylation: Methods and Protocols aims to pave the way for future investigations of the complex regulatory networks that control mRNA stability and expression. This book presents materials and physical methods for carbon dioxide sequestration. Materials include nanosponges, titanium oxide/zeolite hybrids, classical absorbents, metal oxides, ionic liquids, alkaline soils and metal organic frameworks. Methods include cryogenic capture, adsorption, solvent dissolution and soil sequestration. Network threats are emerging and changing faster than ever before. Cisco Next-Generation Network Security technologies give you all the visibility and control you need to anticipate and meet tomorrow's threats, wherever they appear. Now, three Cisco network security experts introduce these products and solutions, and offer expert guidance for planning, deploying, and operating them. The authors present authoritative coverage of Cisco ASA with FirePOWER Services; Cisco Firepower Threat Defense (FTD); Cisco Next-Generation IPS appliances; the Cisco Web Security Appliance (WSA) with integrated Advanced Malware Protection (AMP); Cisco Email Security Appliance (ESA) with integrated Advanced Malware Protection (AMP); Cisco AMP ThreatGrid Malware Analysis and Threat Intelligence, and the Cisco Firepower Management Center (FMC). You'll find everything you need to succeed: easy-to-follow configurations, application case studies, practical triage and troubleshooting methodologies, and much more. Effectively respond to changing threat landscapes and attack continuums Design Cisco ASA with FirePOWER Services and Cisco Firepower Threat Defense (FTD) solutions Set up, configure, and troubleshoot the Cisco ASA FirePOWER Services module and Cisco Firepower Threat Defense Walk through installing AMP Private Clouds Deploy Cisco AMP for Networks, and configure malware and file policies Implement AMP for Content Security, and configure File Reputation and File Analysis Services Master Cisco AMP for Endpoints, including custom detection, application control, and policy management Make the most of the AMP ThreatGrid dynamic malware analysis engine Manage Next-Generation Security Devices with the Firepower Management Center (FMC) Plan, implement, and configure Cisco Next-Generation IPS—including performance and redundancy Create Cisco Next-Generation IPS custom reports and analyses Quickly identify the root causes of security problems The Analysis and Design of Linear Circuits, 8th Edition provides an introduction to the analysis, design, and evaluation of electric circuits, focusing on developing the learners design intuition. The text emphasizes the use of computers to assist in design and evaluation. Early introduction to circuit design motivates the student to create circuit solutions and optimize designs based on real-world constraints. This text is an unbound, three hole punched version. Designed for

engineers and scientists who are non-specialist in electronic circuit design. While most texts focus on how and why electric circuits work, *The Analysis and Design of Linear Circuits* taps into engineering students' desire to explore, create, and put their learning into practice. Students from across disciplines will gain a practical, in-depth understanding of the fundamental principles underlying so much of modern, everyday technology. Early focus on the analysis, design, and evaluation of electric circuits promotes the development of design intuition by allowing students to test their designs in the context of real-world constraints and practical situations. This updated Ninth Edition features an emphasis on the use of computer software, including Excel, MATLAB, and Multisim, building a real-world problem-solving style that reflects that of practicing engineers. Software skills are integrated with examples and exercises throughout the text, and coverage of circuit design and evaluation, frequency response, mutual inductance, ac power circuits, and other central topics has been revised for clarity and ease of understanding. With an overarching goal of instilling smart judgement surrounding design problems and innovative solutions, this unique text provides inspiration and motivation alongside an essential knowledge base. Master powerful techniques and approaches for securing IoT systems of all kinds—current and emerging Internet of Things (IoT) technology adoption is accelerating, but IoT presents complex new security challenges. Fortunately, IoT standards and standardized architectures are emerging to help technical professionals systematically harden their IoT environments. In *Orchestrating and Automating Security for the Internet of Things*, three Cisco experts show how to safeguard current and future IoT systems by delivering security through new NFV and SDN architectures and related IoT security standards. The authors first review the current state of IoT networks and architectures, identifying key security risks associated with nonstandardized early deployments and showing how early adopters have attempted to respond. Next, they introduce more mature architectures built around NFV and SDN. You'll discover why these lend themselves well to IoT and IoT security, and master advanced approaches for protecting them. Finally, the authors preview future approaches to improving IoT security and present real-world use case examples. This is an indispensable resource for all technical and security professionals, business security and risk managers, and consultants who are responsible for systems that incorporate or utilize IoT devices, or expect to be responsible for them.

- Understand the challenges involved in securing current IoT networks and architectures
- Master IoT security fundamentals, standards, and modern best practices
- Systematically plan for IoT security
- Leverage Software-Defined Networking (SDN) and Network Function Virtualization (NFV) to harden IoT networks
- Deploy the advanced IoT platform, and use MANO to manage and orchestrate virtualized network functions
- Implement platform security services including identity, authentication, authorization, and accounting
- Detect threats and protect data in IoT environments
- Secure IoT in the context of remote access and VPNs
- Safeguard the IoT platform itself
- Explore use cases ranging from smart cities and advanced energy systems to the connected car
- Preview evolving concepts that will shape the future of IoT security

Combining leading-edge research with a vast amount of field experience, this book will show anyone how to become the trusted sales professional who consistently wins new business. Customers today are overloaded with information and overwhelmed by options. product value is so high across the competition that any kind of meaningful product differentiation—at least in the customers' eyes—has disappeared. Therefore, between not recognizing product differences, combined with not having any time to spare to investigate what they don't know, the difference maker for many decision makers is you! In *Amp Up Your Sales*, you will learn how to:

- Maximize the value of their selling
- Accelerate responsiveness to build trust and credibility
- Earn valuable selling time with customers
- Shape the buyer's vision
- Integrate persuasive stories into their sales process
- Build lasting relationships through follow-up and customer service

The salesperson who is always responsive and completely focused on value will be the one who will stand out from the crowd and get the sale. The bad news is, your customers won't understand and appreciate all the advantages of your product. The good news is, they aren't making the decision based on the product, but on you! Culled from the pages of CRC's highly successful, best-selling *The Circuits and Filters Handbook, Second Edition*, *Circuit Analysis and*

Feedback Amplifier Theory presents a sharply focused, comprehensive review of the fundamental theory behind professional applications of circuits and feedback amplifiers. It supplies a concise, convenient reference to the key concepts, models, and equations necessary to analyze, design, and predict the behavior of large-scale circuits and feedback amplifiers, illustrated by frequent examples. Edited by a distinguished authority, this book emphasizes the theoretical concepts underlying the processes, behavior, and operation of these devices. It includes guidance on the design of multiple-loop feedback amplifiers. More than 350 figures and tables illustrate the concepts, and where necessary, the theories, principles, and mathematics of some subjects are reviewed. Expert contributors discuss analysis in the time and frequency domains, symbolic analysis, state-variable techniques, feedback amplifier configurations, general feedback theory, and network functions and feedback, among many other topics. Circuit Analysis and Feedback Amplifier Theory builds a strong theoretical foundation for the design and analysis of advanced circuits and feedback amplifiers while serving as a handy reference for experienced engineers, making it a must-have for both beginners and seasoned experts. Advances in Carbon Capture reviews major implementations of CO₂ capture, including absorption, adsorption, permeation and biological techniques. For each approach, key benefits and drawbacks of separation methods and technologies, perspectives on CO₂ reuse and conversion, and pathways for future CO₂ capture research are explored in depth. The work presents a comprehensive comparison of capture technologies. In addition, the alternatives for CO₂ separation from various feeds are investigated based on process economics, flexibility, industrial aspects, purification level and environmental viewpoints. Explores key CO₂ separation and compare technologies in terms of provable advantages and limitations Analyzes all critical CO₂ capture methods in tandem with related technologies Introduces a panorama of various applications of CO₂ capture This book constitutes the refereed proceedings of the 5th International Congress on Blockchain and Applications 2023, BLOCKCHAIN'23, held in Guimarães, Portugal, in July 2023. Among the scientific community, blockchain and artificial intelligence are a promising combination that will transform the production and manufacturing industry, media, finance, insurance, e-government, etc. Nevertheless, there is no consensus with schemes or best practices that would specify how blockchain and artificial intelligence should be used together. The full papers presented in the main track were carefully reviewed. They contain the latest advances on blockchain and artificial intelligence and on their application domains, exploring innovative ideas, guidelines, theories, models, technologies, and tools and identifying critical issues and challenges that researchers and practitioners must deal with in the future research. The authors would like to thank all the contributing authors, the members of the Program Committees, the sponsors, and the Organizing Committee of the University of Minho and the University of Salamanca for their hard and highly valuable work. Basic Engineering Circuit Analysis has long been regarded as the most dependable textbook for computer and electrical engineering majors. In this new edition, Irwin and Nelms continue to develop the most complete set of pedagogical tools available and provide the highest level of support for students entering into this complex subject. Irwin and Nelms trademark student-centered learning design focuses on helping students complete the connection between theory and practice. Key concepts are explained clearly and illustrated by detailed, worked examples. These are then followed by Learning Assessments, which allow students to work similar problems and check their results against the answers provided. This book provides a concise and comprehensive account of circuit design and analysis suitable for undergraduate honours and graduate courses in physics. The microelectromechanical systems (MEMS) industry has experienced explosive growth over the last decade. Applications range from accelerometers and gyroscopes used in automotive safety to high-precision on-chip integrated oscillators for reference generation and mobile phones. MEMS: Fundamental Technology and Applications brings together groundbreaking research in MEMS technology and explores an eclectic set of novel applications enabled by the technology. The book features contributions by top experts from industry and academia from around the world. The contributors explain the theoretical background and supply practical insights on applying the technology. From the historical evolution of nano micro systems to recent trends, they

delve into topics including: Thin-film integrated passives as an alternative to discrete passives The possibility of piezoelectric MEMS Solutions for MEMS gyroscopes Advanced interconnect technologies Ambient energy harvesting Bulk acoustic wave resonators Ultrasonic receiver arrays using MEMS sensors Optical MEMS-based spectrometers The integration of MEMS resonators with conventional circuitry A wearable inertial and magnetic MEMS sensor assembly to estimate rigid body movement patterns Wireless microactuators to enable implantable MEMS devices for drug delivery MEMS technologies for tactile sensing and actuation in robotics MEMS-based micro hot-plate devices Inertial measurement units with integrated wireless circuitry to enable convenient, continuous monitoring Sensors using passive acousto-electric devices in wired and wireless systems Throughout, the contributors identify challenges and pose questions that need to be resolved, paving the way for new applications. Offering a wide view of the MEMS landscape, this is an invaluable resource for anyone working to develop and commercialize MEMS applications.

Differential Amplifier 2. Operational Amplifier 3. Basic Operational Amplifier 4. Frequency Response And Compensation Of Operational Amplifier 5. Signal Conditioning Circuits 6. Active Filter Circuit 7. Noise Control In Operational Amplifiers 8. Operational Amplifier Applications 9. More Operational Amplifier Applications 10. Application Of Spice & Pspice In The Analysis Of Operational Amplifier Circuits 11. Practical Experiments On Operational Amplifier Extra Problems On Operational Amplifiers Review Questions And Answers Multiple Choice Questions Additional Multiple Choice Questions Appendix -A,B,C,D Index

Light photons impinging upon a semiconductor material in the vicinity of a P-N junction release conduction carriers to produce current flow through the photodiode effect. Photodiode amplifiers convert this current to a voltage in a relationship that remains linear as long as the amplifier eliminates signal voltage swing from the photodiode. For this purpose, the simple current-to-voltage converter or transimpedance amplifier presents a virtual ground to the diode. However, when connected to a photodiode, this simple op amp circuit displays surprising multidimensional constraints that defy conventional op amp intuition.

Higher Electronics is a comprehensive text for electronics undergraduates, covering analogue, digital electronics and microelectronics in a single volume - at a level suitable for most first and second year modules. The text is highly student-centred, providing numerous · worked examples with step-by-step guidance and hints · highlighted key facts and points of interest · self-check questions scattered through the text · problem sections (with answers supplied) It has been written to suit courses with an intake from a range of educational backgrounds, and a minimum of prior knowledge is assumed. Higher Electronics has been written to be fully in line with units 8-12 of the new BTEC Higher National specifications from Edexcel. This makes it the text of choice for all students following an electronics / electrical pathway through an HNC or HND. The student-centred text is ideal for the new course, and follows on especially well for students from a GNVQ background. The style and approach of Higher Electronics is consistent with the new text from Newnes, Higher National Engineering, which covers the mandatory units (units 1-7) of the new Higher National scheme. This book introduces the recent technologies introduced for gases capture including CO₂, CO, SO₂, H₂S, NO_x, and H₂. Various processes and theories for gas capture and removal are presented. The book provides a useful source of information for engineers and specialists, as well as for undergraduate and postgraduate students in the fields of environmental and chemical science and engineering.

The operational amplifier ("op amp") is the most versatile and widely used type of analog IC, used in audio and voltage amplifiers, signal conditioners, signal converters, oscillators, and analog computing systems. Almost every electronic device uses at least one op amp. This book is Texas Instruments' complete professional-level tutorial and reference to operational amplifier theory and applications. Among the topics covered are basic op amp physics (including reviews of current and voltage division, Thevenin's theorem, and transistor models), idealized op amp operation and configuration, feedback theory and methods, single and dual supply operation, understanding op amp parameters, minimizing noise in op amp circuits, and practical applications such as instrumentation amplifiers, signal conditioning, oscillators, active filters, load and level conversions, and analog computing. There is also extensive coverage of circuit construction techniques, including

circuit board design, grounding, input and output isolation, using decoupling capacitors, and frequency characteristics of passive components. The material in this book is applicable to all op amp ICs from all manufacturers, not just TI. Unlike textbook treatments of op amp theory that tend to focus on idealized op amp models and configuration, this title uses idealized models only when necessary to explain op amp theory. The bulk of this book is on real-world op amps and their applications; considerations such as thermal effects, circuit noise, circuit buffering, selection of appropriate op amps for a given application, and unexpected effects in passive components are all discussed in detail. *Published in conjunction with Texas Instruments *A single volume, professional-level guide to op amp theory and applications *Covers circuit board layout techniques for manufacturing op amp circuits. Building on the foundation set by its best-selling predecessors, the Groundwater Chemicals Desk Reference, Fourth Edition is both a broad, comprehensive desk reference and a guide for field research. This fourth edition contains more than 1,700 additional references, including adsorption data for more than 800 organic compounds and metals, s The book provides an in-depth discussion regarding inorganic ion exchangers for students, teachers, and researchers engaged in conducting research in chemical technology and related areas. Analytical chemists seeking simple and novel means of using easy-to-prepare chromatographic materials will find this book extremely informative. Inorganic Ion Exchangers in Chemical Analysis is unique in its discussion of column and planar chromatographic applications of amorphous synthetic inorganic ion exchangers. The book also covers the historical background of iorganic ion exchangers, their classification and present status, and the analytical aspects of these materials. This book gathers the proceedings of the 2018 International Conference on Digital Science (DSIC'18), held in Budva, Montenegro, on October 19 - 21, 2018. DSIC'18 was an international forum for researchers and practitioners to present and discuss the latest innovations, trends, results, experiences and concerns in Digital Science. The main goal of the Conference was to efficiently disseminate original findings in the natural and social sciences, art & the humanities. The contributions address the following topics: Digital Agriculture & Food Technology Digital Art & Humanities Digital Economics Digital Education Digital Engineering Digital Environmental Sciences Digital Finance, Business & Banking Digital Health Care, Hospitals & Rehabilitation Digital Media Digital Medicine, Pharma & Public Health Digital Public Administration Digital Technology & Applied Sciences Digital Virtual Reality The conversion of CO₂ to chemicals and consumables is a pioneering approach to utilize undesired CO₂ emissions and simultaneously create new products out of sustainable feedstock. Volume 1 gives an introduction to CO₂ chemistry, utilisation and sustainability and further discusses its capture and separation. Both volumes are also included in a set ISBN 978-3-11-066549-9. This book presents a comprehensive review of the latest information on all aspects of the post-combustion carbon capture process. It provides designers and operators of amine solvent-based CO₂ capture plants with an in-depth understanding of the most up-to-date fundamental chemistry and physics of the CO₂ absorption technologies using amine-based reactive solvents. Topics covered include the physical properties, chemical analysis, reaction kinetics, CO₂ solubility, and innovative configurations of absorption and stripping columns as well as information on technology applications. This book also examines the post-build operational issues of corrosion prevention and control, solvent management, solvent stability, solvent recycling and reclaiming, intelligent monitoring and plant control including process automation. In addition, the authors discuss the recent insights into the theoretical basis of plant operation in terms of thermodynamics, transport phenomena, chemical reaction kinetics/engineering, interfacial phenomena, and materials. The insights provided help engineers, scientists, and decision makers working in academia, industry and government gain a better understanding of post-combustion carbon capture technologies. Op Amps for Everyone, Fifth Edition, will help you design circuits that are reliable, have low power consumption, and can be implemented in as small a size as possible at the lowest possible cost. It bridges the gap between the theoretical and practical by giving pragmatic solutions using components that are available in the real world from distributors. The book does not just give a design with a transfer function; instead, it provides design tools based on transfer function, getting you to a working circuit so you can make

the right decision on which op amp is best for the job at hand. With this book you will learn: single op amp designs that get the most out of every amplifier; which specifications are of most importance to your design, enabling you to narrow down the list of amplifiers to those few that are most suitable; strategies for making simple tweaks to the design—changes that are often apparent once a prototype has been constructed; how to design for hostile environments—extreme temperatures, high levels of shock, vibration, and radiation—by knowing which circuit parameters are likely to degrade and how to counteract that degradation. Features real world op amp selection guides

Teaches which op amp is best for the job
Includes design circuits with real world component values
Contains guidelines for developing the entire signal chain, from specification for the transducer to power supply and data converter
Includes new coverage of negative regulation techniques and op amp stability, negative regulation techniques, extended electronics theory and troubleshooting

Photoplethysmography: Technology, Signal Analysis, and Applications is the first comprehensive volume on the theory, principles, and technology (sensors and electronics) of photoplethysmography (PPG). It provides a detailed description of the current state-of-the-art technologies/optical components enabling the extreme miniaturization of such sensors, as well as comprehensive coverage of PPG signal analysis techniques including machine learning and artificial intelligence. The book also outlines the huge range of PPG applications in healthcare, with a strong focus on the contribution of PPG in wearable sensors and PPG for cardiovascular assessment. Presents the underlying principles and technology surrounding PPG
Includes applications for healthcare and wellbeing
Focuses on PPG in wearable sensors and devices
Presents advanced signal analysis techniques
Includes cutting-edge research, applications and future directions

This book describes different kinds of photodiodes for applications in high-speed data communication, biomedical sensing, high-speed measurement, UV-light detection, and high energy physics. The photodiodes discussed are composed of several different semiconductor materials, such as InP, SiC, and Si, which cover an extremely wide optical wavelength regime ranging from infrared light to X-ray, making the suitable for diversified applications. Several interesting and unique topics were discussed including: the operation of high-speed photodiodes at low-temperature for superconducting electronics, photodiodes for bio-medical imaging, single photon detection, photodiodes for the applications in nuclear physics, and for UV-light detection.

Modern Methods for the Separation of Rarer Metal Ions describes several separation methods of more than 50 elements. This book is divided into 19 chapters that include separation methods involving the actinide elements, rare earths, and many rarer elements of the main and transition groups of the periodic table. The introductory chapter discusses the principles of the separation techniques presented in this book. The remaining chapters explore the application of specific separation methods, such as ion exchange, chromatography, liquid-liquid extraction, distillation, and coprecipitation. The approach of each chapter is a presentation of separation principle of an element first followed by numerous examples of applications to the solution of practical problems encountered in separation chemistry. Chapters 2 and 3 examine the separations involving the actinides and rare earth elements using ion exchange and liquid-liquid extraction. These are followed by chapters dealing with separations of other rarer elements, which have been arranged according to their position in the periodic table. These elements are: Li, Rb, Cs, Fr, Be, Ra, Ga, In, Tl, Ge, Ag, Au, Ti, Zr, Hf, V, Nb, Ta, Mo, W, Tc, Re and the platinum metals. This book will be of great use to analytical chemists.

Promoting the design, application and evaluation of visually and electrically effective LED light sources and luminaires for general indoor lighting as well as outdoor and vehicle lighting, this book combines the knowledge of LED lighting technology with human perceptual aspects for lighting scientists and engineers. After an introduction to the human visual system and current radiometry, photometry and color science, the basics of LED chip and phosphor technology are described followed by specific issues of LED radiometry and the optical, thermal and electric modeling of LEDs. This is supplemented by the relevant practical issues of pulsed LEDs, remote phosphor LEDs and the aging of LED light sources. Relevant human visual aspects closely related to LED technology are described in detail for the photopic and the mesopic range of vision, including color rendering, binning, whiteness, Circadian

issues, as well as flicker perception, brightness, visual performance, conspicuity and disability glare. The topic of LED luminaires is discussed in a separate chapter, including retrofit LED lamps, LED-based road and street luminaires and LED luminaires for museum and school lighting. Specific sections are devoted to the modularity of LED luminaires, their aging and the planning and evaluation methods of new LED installations. The whole is rounded off by a summary and a look towards future developments. Medical informatics and electronic healthcare have many benefits to offer in terms of quality of life for patients, healthcare personnel, citizens and society in general. But evidence-based medicine needs quality information if it is to lead to quality of health and thus to quality of life. This book presents the full papers accepted for presentation at the MIE2012 conference, held in Pisa, Italy, in August 2012. The theme of the 2012 conference is 'Quality of Life through Quality of Information'. As always, the conference provides a unique platform for the exchange of ideas and experiences among the actors and stakeholders of ICT supported healthcare. The book incorporates contributions related to the latest achievements in biomedical and health informatics in terms of major challenges such as interoperability, collaboration, coordination and patient-oriented healthcare at the most appropriate level of care. It also offers new perspectives for the future of biomedical and health Informatics, critical appraisal of strategies for user involvement, insights for design, deployment and the sustainable use of electronic health records, standards, social software, citizen centred e-health, and new challenges in rehabilitation and social care informatics. The topics presented are interdisciplinary in nature and will be of interest to a variety of professionals; physicians, nurses and other allied health providers, health informaticians, engineers, academics and representatives from industry and consultancy in the various fields.