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BZFOMD - MAHONEY RORY

This book contains the topics of artificial intelligence and deep learning that do have much application in real-life problems. The concept of uncertainty has long been used in applied science, especially decision making and a logical decision must be made in the field of uncertainty or in the real-life environment that is formed and combined with vague concepts and data. The chapters of this book are connected to the new concepts and aspects of decision making with uncertainty. Besides, other chapters are involved with the concept of data mining and decision making under uncertain computations.

A big part of Dr. Joe's job as director of McGill University's Office of Science and Society is persuading people that the pursuit of sci-

ence knowledge is a potential source of wonder, enlightenment and well-being for everyone. And as a chemist, he's particularly keen to rescue chemistry from the bad rep it's developed over recent decades. There is more to chemistry than toxins, pollution, and "Don't drink that soda--it's full of chemicals." The evangelic zeal Dr. Joe brings to his day job is of course also the driving force behind his work as an author. Once again, here he is to tell that everything is full of chemicals, and that chemistry means health, nutrition, beauty products, cleaning products, DNA, and the means by which Lady Gaga's meat dress was held together. In the style established with the bestselling Brain Fuel, each section here is themed and contains a mixture of short, pithy items and slightly longer mini-essays. And as before--but never with such en-

ergy and relish--Dr. Joe goes on the attack against charlatans in the alternative health trade, naming and shaming them in a particularly entertaining and edifying section of the book called "Clap-trap." You will learn whether to put broccoli on a pizza before or after baking, whether beauty pills are worth taking, and whether the baby shampoo you're using is poisonous. You will discover but not use, please, the recipe for a Molotov cocktail. You will be enabled to enthrall fellow dinner guests with the derivation of the name Persil, and the definition of a kangarian (it's someone who only eats kangaroo meat). As ever, this torrent of entertainment is delivered in Dr. Joe's unmistakably warm, lively and authoritative voice.

This is the first complete book of polymer terminology ever published. It contains more than 7,500 polymeric material terms. Supplementary electronic material brings important relationships to life, and audio supplements include pronunciation of each term.

This publication discusses the theoretical aspects of absorbency as well as the structure, properties and performance of materials. The chapters are arranged in an approach for the reader to advance progressively through fundamental theories of absorbency to more practical aspects of the technology. Topics covered include scientific principles of absorbency and structure property relationships; material technology including super absorbents, non-woven, natural and synthetic fibres and surfactants; absorbency measurement techniques and technology perspective. The reader is provided with current status information on technology and is also informed on important developments within the field.

The book defines the differences between synthetic and natural

superabsorbent polymers. It describes polymerization techniques, processing strategies and the use and importance of smart SAPs. It also includes SAP design to aid in selection of the best SAP for a specific application. The book is an indispensable resource for any academics and industrials interested in SAPs.

Due to their unique properties, chitosan-based materials have emerged as useful resources in a variety of medicines, drug controlled-release carriers, tissue engineering scaffolds, and immobilized enzymes. But many of these materials have yet to reach the commercial market. Therefore, more work must be completed to fill the gap between research and production. Exploring the state of the field, *Chitosan-Based Hydrogels: Functions and Applications* details the latest progress in the research and development of chitosan-based biomaterials. The book introduces the formation and chemical structure of chitosan-based hydrogels. It also discusses the relationship between their structure and functions, which provides a theoretical basis for the design of biomaterials. In addition, many real-world examples illustrate the potential application of chitosan-based hydrogels in various areas, including materials science, biotechnology, pharmaceuticals, regenerative medicine, and cell engineering. By examining the structure and functions of chitosan-based hydrogels in living systems, this book provides the foundation for future research. It encourages readers to contribute to further research and development of these unique biomaterials.

Construction industry like any other area of economic and social life undergoes continuous alterations and improvements in order to successfully comply with the requirements of sustainable development. Consumers demand more durable, less labour and ser-

vice intensive materials at a competitive price. To meet these expectations numerous new composite materials have been developed over the last couple of decades, including cementitious materials modified by superabsorbent polymers (SAP). The paper presents part of the larger research project on the performance of cementitious mortars containing two types of superabsorbent polymers (SAP) as the internal curing agent. SAP A is a copolymer of acrylamide and acrylic acid and SAP B is a polymer based on acrylic acid. Research work presented in this paper involves macro and micro scale characterisation of polymer modified mortars. The microstructural features were studied with application of the Mercury Intrusion Porosimetry and the Scanning Electron Microscopy techniques. Analyses of pore size distribution in mortars of different ages are accompanied by the analyses of strength and autogenous shrinkage development as well as early density changes in immature mortars by the X-ray absorption method. The investigations confirmed the positive effect of SAP A on the reduction of autogenous shrinkage and microcrack propagation. Limited absorption/desorption abilities of SAP B cannot reassure continuous supply of water and hence the performance of SAP B mortars was comparable with the reference samples. The effect of both SAPs on strength development proved to be negligible.

This volume presents selected papers from IACMAG Symposium, The major themes covered in this conference are Earthquake Engineering, Ground Improvement and Constitutive Modelling. This volume will be of interest to researchers and practitioners in geotechnical and geomechanical engineering.

This book is a good basic guide to the polymers that are used in the construction industry. The types of polymers that can be used are discussed and specific applications are also covered. There is also a very comprehensive section on the health and safety aspects of using polymers in buildings.

This book presents articles from The 16th East Asian-Pacific Conference on Structural Engineering and Construction, 2019, held in Brisbane, Australia. It provides a forum for professional engineers, academics, researchers and contractors to present recent research and developments in structural engineering and construction.

This book gathers peer-reviewed contributions presented at the 3rd RILEM Spring Convention and Conference, held at Guimarães and hosted by the University of Minho, Portugal, on March 9-14, 2020. The theme of the Conference was "Ambitioning a Sustainable Future for Built Environment: comprehensive strategies for unprecedented challenges", which was aimed at discussing current challenges and impacts of the built environment on sustainability. The present volume is dedicated to the topic "New materials and structures for ultra-durability", which covers current scientific and technological developments aimed at improving knowledge about degradation mechanisms in construction materials, as well as to the development of new materials with extreme durability. Novel special materials for extreme environments or extreme loading conditions are also included, as well as novel approaches to improve the performance and durability of currently common construction materials. The following subtopics are included: general purpose, constructions, infrastructures and facilities; extreme environments and extreme events; transport and

deterioration mechanisms, characterization and mitigation; Supplementary Cementitious Materials, admixtures, additions and other emerging material optimization strategies; smart materials for durable structures.

The book is a compilation of recent research results on building construction materials. Civil Engineers and Materials Scientists from all over the world present their ideas for further material developments, the testing of structures and solutions for in situ applications. Many of the innovations, composites and the design of existing material mixes, especially for concrete, are discussed.

Eco-efficient Repair and Rehabilitation of Concrete Infrastructures provides an updated state-of-the-art review on eco-efficient repair and rehabilitation of concrete infrastructure. The first section focuses on deterioration assessment methods, and includes chapters on stress wave assessment, ground-penetrating radar, monitoring of corrosion, SHM using acoustic emission and optical fiber sensors. Other sections discuss the development and application of several new innovative repair and rehabilitation materials, including geopolymers, concrete, sulfoaluminate cement-based concrete, engineered cementitious composites (ECC) based concrete, bacteria-based concrete, concrete with encapsulated polyurethane, and concrete with super absorbent polymer (SAPs), amongst other topics. Final sections focus on crucial design aspects, such as quality control, including lifecycle and cost analysis with several related case studies on repair and rehabilitation. The book will be an essential reference resource for materials scientists, civil and structural engineers, architects, structural designers and contractors working in the construction industry.

try. Delivers the latest research findings with contributions from leading international experts Provides fully updated information on the European standard on materials for concrete repair (EN 1504) Includes an entire sections on the state-of-the-art in NDT, innovative repair and rehabilitation materials, as well as LCC and LCA information

This book is concerned with polymeric hydrogels, which are considered as one of the most promising types of new polymer-based materials. Each chapter in this book describes a selected class of polymeric hydrogels, such as superabsorbent hybrid nanohydrogels, conducting polymer hydrogels, polysaccharide-based or protein-based hydrogels, or gels based on synthetic polymers. In this way, the book also addresses some of the fascinating properties and applications of polymeric hydrogels: they are three-dimensional, hydrophilic, polymeric networks that can absorb, swell and retain large quantities of water or aqueous fluids. In combination with metal nanoparticles, nanofibrils or nanowhiskers, which may be embedded in the gels, they find widespread applications, ranging from agriculture, and waste water treatment, over electronics, to pharmaceutical and biomedical applications. Applications mentioned in this book include electro sensors, capacitors, electromechanical actuators, and even artificial muscles.

Medical Textile Materials provides the latest information on technical textiles and how they have found a wide range of medical applications, from wound dressings and sutures, to implants and tissue scaffolds. This book offers a systematic review of the manufacture, properties, and applications of these technical textiles. After a brief introduction to the human body, the book gives an

overview of medical textile products and the processes used to manufacture them. Subsequent chapters cover superabsorbent textiles, functional wound dressings, bandages, sutures, implants, and other important medical textile technologies. Biocompatibility testing and regulatory control are then addressed, and the book finishes with a review of research and development strategy for medical textile products. Provides systematic and comprehensive coverage of the manufacture, properties, and applications of medical textile materials Covers recent developments in medical textiles, including antimicrobial dressings, drug-releasing materials, and superabsorbent textiles Written by a highly knowledgeable author with extensive experience in industry and academia Undoubtedly the applications of polymers are rapidly evolving. Technology is continually changing and quickly advancing as polymers are needed to solve a variety of day-to-day challenges leading to improvements in quality of life. The Encyclopedia of Polymer Applications presents state-of-the-art research and development on the applications of polymers. This groundbreaking work provides important overviews to help stimulate further advancements in all areas of polymers. This comprehensive multi-volume reference includes articles contributed from a diverse and global team of renowned researchers. It offers a broad-based perspective on a multitude of topics in a variety of applications, as well as detailed research information, figures, tables, illustrations, and references. The encyclopedia provides introductions, classifications, properties, selection, types, technologies, shelf-life, recycling, testing and applications for each of the entries where applicable. It features critical content for both novices and experts including, engineers, scientists (polymer scientists, materials scien-

tists, biomedical engineers, macromolecular chemists), researchers, and students, as well as interested readers in academia, industry, and research institutions.

This is the state-of-the-art report prepared by the RILEM TC "Application of Super Absorbent Polymers (SAP) in concrete construction". It gives a comprehensive overview of the properties of SAP, specific water absorption and desorption behaviour of SAP in fresh and hardening concrete, effects of the SAP addition on rheological properties of fresh concrete, changes of cement paste microstructure and mechanical properties of concrete. Furthermore, the key advantages of using SAP are described in detail: the ability of this material to act as an internal curing agent to mitigate autogenous shrinkage of high-performance concrete, the possibility to use SAP as an alternative to air-entrainment agents in order to increase the frost resistance of concrete, and finally, the benefit of steering the rheology of fresh cement-based materials. The final chapter describes the first existing and numerous prospective applications for this new concrete additive.

Annotation Papers presented at the Twelfth ASTM Symposium on [title], held in San Diego, California, October 1991. The volume is divided into four sections: novel surfactants and their properties (four papers); pesticide formulation technologies (14 papers); pesticide packaging and management (one paper: Container Design and "Glug"); and pesticide application technologies (eight papers). Annotation copyright by Book News, Inc., Portland, OR.

In recent years, there has been a veritable explosion of research and development in consumer-oriented fields that utilize polymeric materials which absorb large amounts of water. These fields en-

compass the preparation, characterization and commercialization of separation systems, pharmaceutical and personal care products such as infant diapers, feminine products, incontinence products and many other related areas. The polymeric materials utilized in these applications are known as absorbent or superabsorbent materials because of their ability to swell rapidly and to retain large volumes of water, urine and other biological fluids. The aim of this book is to introduce the fundamentals of polymer structure and swelling as related to polymers used for these superabsorbent materials. In the field of absorbence, particular attention is given to crosslinked structures which swell to more than fifty times their initial weight in water or electrolytic solutions. The book also provides descriptions of novel applications of superabsorbent materials as well as a detailed analysis of water transport in crosslinked polymers. Absorbent Polymer Technology should be of interest to chemists, polymer scientists, chemical engineers, and industrial scientists working with swellable polymeric systems in personal care, pharmaceutical, agricultural waste treatment and separation industries.

This book discusses fundamental aspects of super absorbent polymers (SAPs), insight into the synthesis and modification of SAPs as well as their potential applications in different domains. SAPs are bio-based material that has attracted much interest due to their unique structural properties, biodegradability, biocompatibility, etc. The book exhibits a unique combination of SAP designing, synthetic strategies, properties and chemistry along with SAP's application in the field of drug delivery, firefighting and biosensors, agriculture, etc. Various approaches to make these products a cost-effective and sustainable are discussed precisely in this

book. Additionally, the approaches from the perspective of academic organization and research laboratories, many readers are able to learn the insights of the connection between super absorbent polymers in the agriculture field by reducing seedling mortality owing to their water storage capacity in soil. This book written by eminent researchers can be a useful reference for graduate, post-graduate students and researchers working in the file of super absorbent polymers, polymer technology, hygiene industry, etc.

This book expands on the previous volumes with new chapters exploring emerging themes and methodologies in bacterial virus research. The chapters in this book are divided into 4 parts and cover topics such as: iron chloride flocculation of bacteriophages from seawater; encapsulation of Listeria phage A511 by alginate; examining genome termini of bacteriophage through high-throughput sequencing; genome sequencing of dsDNA-containing bacteriophages directly from a single plaque; characterizing bacteriophages by biology, taxonomy, and genome analysis; phage genome annotation using the RAST pipeline; and the use of RP4::mini-Mu for gene transfer. 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 tips on troubleshooting and avoiding known pitfalls. Cutting edge and authoritative, Bacteriophages: Methods and Protocols, Volume III is a valuable resource for both established and novice phage scientists.

Papers presented at the 13th Symposium on [title], held in Miami,

Florida in November 1992. The subjects involve a wide range of disciplines of interest to formulators, basic pesticide manufacturers, applicators, and suppliers to the agrochemical industry. The volume is a compilation of the latest d

Edited by a leading expert in the field with contributions from experienced researchers in fibers and textiles, this handbook reviews the current state of fibrous materials and provides a broad overview of their use in research and development. Volume One focuses on the classes of fibers, their production and characterization, while the second volume concentrates on their applications, including emerging ones in the areas of energy, environmental science and healthcare. Unparalleled knowledge of high relevance to academia and industry.

The use of internal curing and specifically the use of super absorbent polymers has recently become an important topic in concrete research. Internal curing has been shown to reduce autogenous shrinkage in concrete mixtures, especially in high-strength mixtures where the water to cement ratio is low. Super absorbent polymer has not been studied in regards to its effect on pervious concrete. This research was conducted to examine the effectiveness of a commercially available super absorbent polymer in both standard and pervious concrete. The testing was initially conducted on mortar mixtures, followed by standard and high-strength concrete mixtures, and finally pervious concrete mixtures. Several tests were conducted including compressive strength, autogenous and total shrinkage, restrained shrinkage, moisture loss, abrasion, as well as others. The results followed similar trends as much of the previous research conducted on standard and high-strength mixtures containing super absorbent polymer. The pervi-

ous concrete containing super absorbent polymer showed an improvement in compressive strength, abrasion resistance, moisture loss, and total shrinkage compared to a control pervious mixture. If long term testing shows an improvement in the durability of pervious concrete containing super absorbent polymer, the applications for pervious concrete could be significantly increased.

Discusses the fundamental aspects of structure-property relationships in superabsorbent polymers, including network modeling and compressibility of ionic gels. Describes methods of preparation and specification of superabsorbents. Presents novel methods of preparation resulting in absorbent polymers with advanced properties. Examines emerging applications of superabsorbent polymers in the construction, agriculture, food, leisure, and communications industries.

The main goal of the book was to gather current knowledge of recent advances in polymer science and technology, the physical characterization and advanced performance attributes of both synthetic and biological polymeric materials. The volume covers six broad topics such as rubber science and technology, composites, textiles, adhesive and coatings, process modelling and simulations, testing and instrumentation.

Vincent Bulone et al.: Cellulose sources and new understanding of synthesis in plants Thomas Heinze et al.: Cellulose structure and properties Thomas Rosenau, Antje Potthast, Ute Henniges et al.: Recent developments in cellulose aging (degradation / yellowing / chromophore formation) Sunky Park et al.: Cellulose crystallinity Lina Zhang et al.: Gelation and dissolution behavior of cellulose Yoshiyuki Nishio et al.: Cellulose and derivatives in liquid

crystals Alessandro Gandini, Naceur Belgacem et al.:The surface and in-depth modification of cellulose fibers Emily D. Cranston et al.:Interfacial properties of cellulose Herbert Sixta, Michael Hummel et al.Cellulose Fibers Regenerated from Cellulose Solutions in Ionic Liquids Qi Zhou et al.:Cellulose-based biocomposites Orlando Rojas et al.:Films of cellulose nanocrystals and nanofibrils Pedro Fardim et al.:Functional cellulose particles Wadood Hamad et al.:Cellulose Composites

The use of internal curing and specifically the use of super absorbent polymers has recently become an important topic in concrete research. Internal curing has been shown to reduce autogenous shrinkage in concrete mixtures, especially in high-strength mixtures where the water to cement ratio is low. Super absorbent polymer has not been studied in regards to its effect on pervious concrete. This research was conducted to examine the effectiveness of a commercially available super absorbent polymer in both standard and pervious concrete. The testing was initially conducted on mortar mixtures, followed by standard and high-strength concrete mixtures, and finally pervious concrete mixtures. Several tests were conducted including compressive strength, autogenous and total shrinkage, restrained shrinkage, moisture loss, abrasion, as well as others.

A thorough, up-to-date examination of the science and practical application of superabsorbent polymers. Modern Superabsorbent Polymer Technology takes a comprehensive look at the structure, properties, and uses of superabsorbent polymers. Prepared by editors with over 20 years of experience in the field, it offers a unified approach to polymer science technologies and examines

the key interrelationships between structure, properties, behavior, and applications. This book draws on the best and most relevant scientific papers from academia and industry, as well as numerous patents and patent applications. The result is a compact, centralized source of information on superabsorbent polymers that no polymer or chemical engineer will want to be without. Discusses synthetic chemistry and the effects of synthesis on the structure of superabsorbent polymers * Describes and compares industrial practices of the major manufacturers of superabsorbent polymers * Features analytical methods for evaluation of the properties and behavior of superabsorbent polymers * Explores structural and property relationships of crosslinked super-absorbent polymers * Surveys new superabsorbent polymer forms and types-including fibers, foams, and biodegradable super-absorbents * Covers current and emerging applications in personal care products, horticulture, construction, and other areas.

This book is an Up-to-date and authoritative account on physico-chemical principles, pharmaceutical and biomedical applications of hydrogels. It consists of eight contributions from different authors highlighting properties and synthesis of hydrogels, their characterization by various instrumental methods of analysis, comprehensive review on stimuli-responsive hydrogels and their diverse applications, and a special section on self-healing hydrogels. Thus, this book will equip academia and industry with adequate basic and applied principles related to hydrogels.

Hydrogels Based on Natural Polymers presents the latest research on natural polymer-based hydrogels, covering fundamentals, preparation methods, synthetic pathways, advanced properties, major application areas, and novel characterization tech-

niques. The advantages and disadvantages of each natural polymer-based hydrogel are also discussed, enabling preparation tactics for specific properties and applications. Sections cover fundamentals, development, characteristics, structures and properties. Additional chapters cover presentation methods and properties based on natural polymers, including physical and chemical properties, stimuli-responsive properties, self-healing properties, and biological properties. The final section presents major applications areas, including the biomedical field, agriculture, water treatments, and the food industry. This is a highly valuable resource for academic researchers, scientists and advanced students working with hydrogels and natural polymers, as well as across the fields of polymer science, polymer chemistry, plastics engineering, biopolymers and biomaterials. The detailed information will also be of great interest to scientists and R&D professionals, product designers, technicians and engineers across industries. Provides systematic coverage of all aspects of hydrogels based on natural polymers, including fundamentals, preparation methods, properties and characterization Offers a balanced assessment of the specific properties and possibilities offered by different natural polymer-based hydrogels, drawing on innovative research Examines cutting-edge applications across biomedicine, agriculture, water treatments, and the food industry

Polyethylene Glycols—Advances in Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Hydrogel. The editors have built Polyethylene Glycols—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Hydro-

gel in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Polyethylene Glycols—Advances in Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

The occurrence of heavy metals in the environment, even in traces, represents a severe risk for the ecosystems and can be dangerous to human health. However, a better understanding of the main aspects involved is still needed to reduce its negative impact on the environment and health. This book covers the recent methods used for the evaluation of heavy metal pollution and the identification of its sources, descriptions of some of the processes involved in its mobility and transport, attempts to address health and environmental effects of heavy metals pollution, and presents alternative technologies for its removal and remediation from environmental samples. Therefore, this book is recommended for experts in the comprehensive management of metal contamination in different environmental compartments.

This new important book is a collection of research and review articles from different parts of the world discussing the dynamic and vibrant field of hydrogels. The articles are linking new findings and critically reviewing the fundamental concepts and princi-

ples that are making the base for innovation. Each chapter discusses the potential of hydrogels in diverse areas. These areas include tissue engineering, implants, controlled drug release, and oil reserve treatment. The book is offering an up-to-date knowledge of hydrogels to experienced as well as new researchers.

The book gathers the peer-reviewed contributions presented at the 3rd International Conference on Application of Superabsorbent Polymers (SAP) and Other New Admixtures towards Smart Concrete, held in Skukuza, South Africa, on November 25-27, 2019. It features papers focusing on the behavior of SAP in concrete (in particular the absorption behavior) as well as the effect of SAP on fresh and hardened concrete properties. It also covers topics such as other modern admixtures, in particular rheology-modifying admixtures, including the recently emerging field of bio- or waste-derived admixtures. The conference builds on the experience and summarizes the activities of the RILEM Technical Committee 260-RSC "Recommendations for Use of Superabsorbent Polymers in Concrete Construction" and addresses other prominent research activities in the field of concrete admixtures. This volume collects the proceedings from the International Congress of Polymers in Concrete 2018 (ICPIC), held under the theme "Polymers for Resilient and Sustainable Concrete Infrastructure." ICPIC 2018 provides an opportunity for researchers and specialists working in the fields of polymers to exchange ideas and follow the latest progress in the use of polymers in concrete infrastructure. It also showcases the use of polymers and polymer concrete in sustainable and resilient development, and provides a platform for local and overseas suppliers, developers, manufactur-

ers and contractors using polymers, polymer concrete and polymer composites in concrete structures to develop new business opportunities and follow the latest developments in the field. The International Congress of Polymers in Concrete is an international forum that has taken place every three years for the last 40 years with the objective of following progress in the field of polymers and their use in concrete and construction. Following 15 successful congresses held in London (1975), Austin (1978), Koriyama (1981), Darmstadt (1984), Brighton (1987), Shanghai (1990), Moscow (1992), Oostende (1995), Bologna (1998), Honolulu (2001), Berlin (2004), Chuncheon (2007), Funchal (2010), Shanghai (2013) and Singapore (2015), the 16th ICPIC will take place in Washington, DC, from April 29 to May 1st, 2018.

With the prospect of revolutionizing specific technologies, this book highlights the most exciting and impactful current research in the fields of cellulose-based superabsorbent hydrogels with their smart applications. The book assembles the newest synthetic routes, characterization methods, and applications in the emergent area. Leading experts in the field have contributed chapters representative of their most recent research results, shedding light on the enormous potential of this field and thoroughly presenting cellulose-based hydrogel functioning materials. The book is intended for the polymer chemists, academic and industrial scientists and engineers, pharmaceutical and biomedical scientists and agricultural engineers engaged in research and development on absorbency, absorbent products and superabsorbent hydrogels. It can also be supportive for undergraduate and graduate students.