KISR
معهد الكويت للأبحاث العلمية
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

The Most-Cited Papers Report

A Window to the Latest Global Research of Interest

2020 - 2022

NSTIC Information Outreach Team (NIOT)
Technical Services Department (TSD)

The Most-Cited Papers Report

A Window to the Latest Global Research of Interest

2020 - 2022

National Scientific & Technical Information Center (NSTIC)

NSTIC Information Outreach Team (NIOT)

Bassam Awadh

Sarah Al-Adwani

Naser Al-Marri

Sarah Al-Ajmi

Manal Al-Adwani

Hanah Sharak

For more information contact:

EXT.: 6686

Email: bawadh@kisr.edu.kw

National Scientific & Technical Information Center (NSTIC)

Technical Services Department (TSD)

September 2023

Contents

Introduction

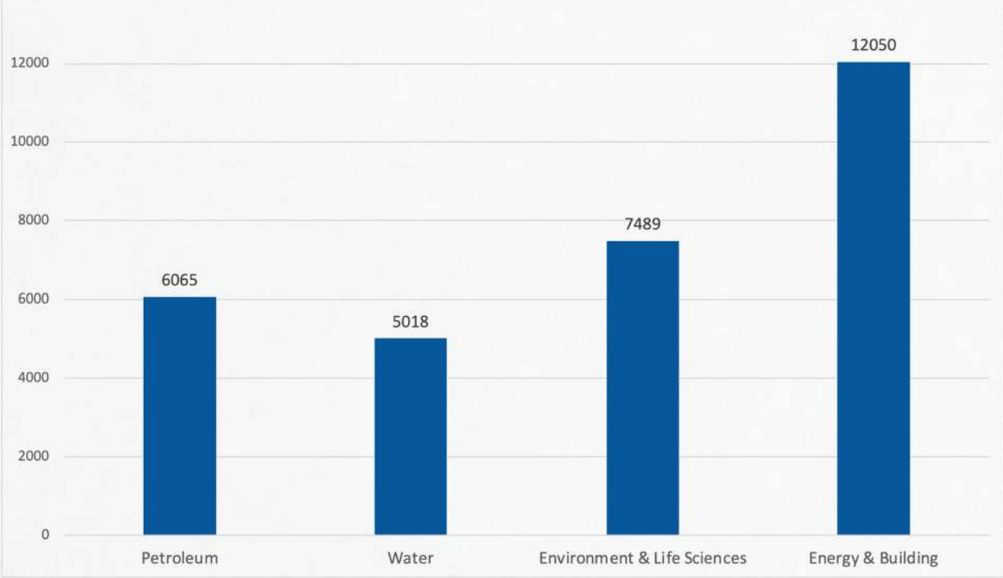
The Most-Cited Papers Report aims to shed light on the trending topics in the global research community. It highlights the top ten articles, on specific topics, based on the citations received for the previous two years. To align the trending topics with KISR research areas, the search is conducted in accordance with the programs in each research center; i.e., The Most-Cited Report is designed to represent KISR's research centers as subject areas and the programs within those centers as topics. The result is an in-depth look at the latest global research areas of interest through KISR's lens.

Citation is the simplest and most direct indicator of articles' importance; especially when we take into consideration a specific time span. Such a combination can provide interesting insights such as breakthroughs, reemerging technologies, new subject fields of research and potential collaborations with leading scientists in a field.

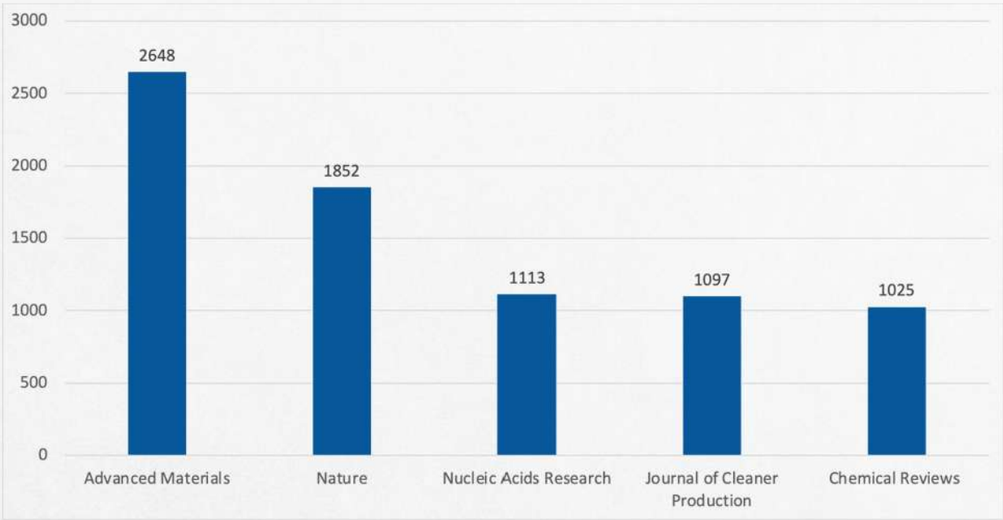
The data in this report is collected solely from Web of science by Clarivate Analytics and curated by NSTIC Information Outreach Team (NIOT) to assist KISR's researchers in their research endeavors. This report is published in September every year, covering the two previous years. Therefore, this report does not reflect any data changes in Web of science after the data collection (June of every year).

Overview

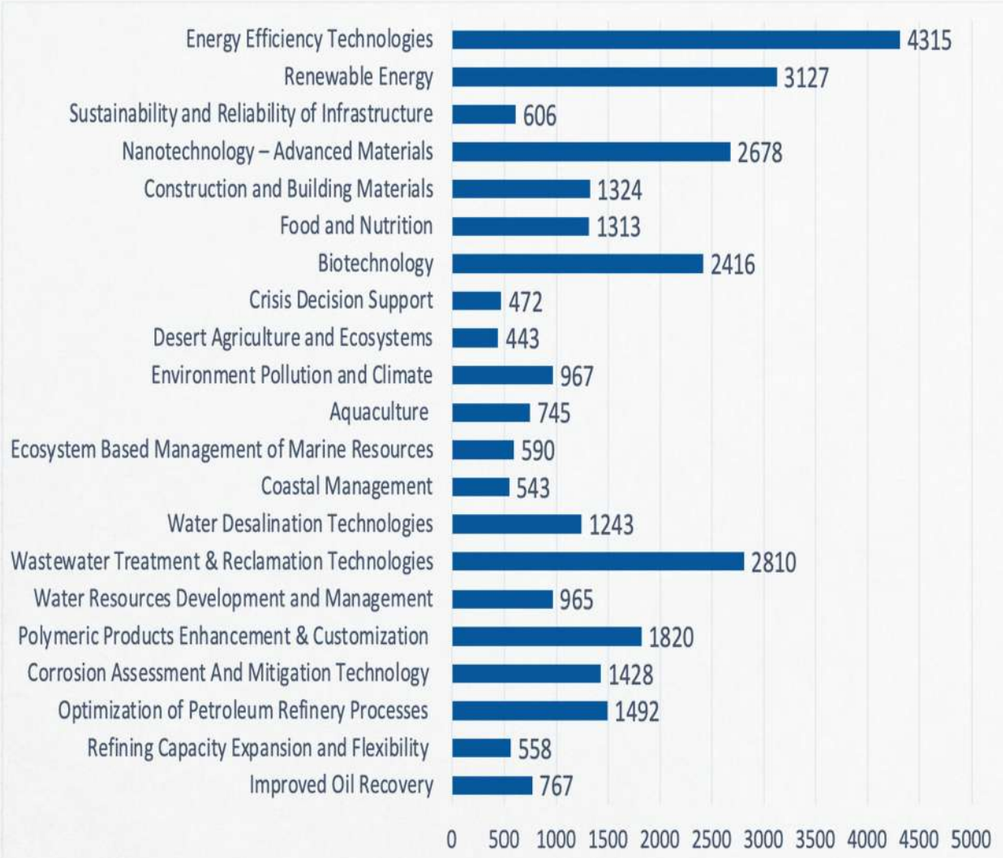
Citations Per Subject Area



Top 5 Cited Journals [1]



Citations Per Topic



Coastal Management

No.	Article Title	Citations
1	Marine harmful algal blooms (HABs) in the United States: History, current status and future trends	97
2	Estimating marine plastic pollution from COVID-19 face masks in coastal regions	89
3	Personal protective equipment (PPE) pollution driven by the COVID-19 pandemic in Cox's Bazar, the longest natural beach in the world	68
4	Financial aspects of marine economic growth: From the perspective of coastal provinces and regions in China	55
5	Evaluation model and management strategy for reducing pollution caused by ship collision in coastal waters	52
6	A systematic analysis for maritime accidents causation in Chinese coastal waters using machine learning approaches	45
7	COVID-19 lockdown improved the health of coastal environment and enhanced the population of reef-fish	44
8	Wave height predictions in complex sea flows through soft-computing models: Case study of Persian Gulf	35
9	Assessing threats, regulations, and strategies to abate plastic pollution in LAC beaches during COVID-19 pandemic	29
10	Coastal erosion vulnerability assessment along the eastern coast of Bangladesh using geospatial techniques	29

Anderson, D. M., Fensin, E., Gobler, C. J., Hoeglund, A. E., Hubbard, K. A., Kulis, D. M., Landsberg, J. H., Lefebvre, K. A., Provoost, P., Richlen, M. L., Smith, J. L., Solow, A. R., & Trainer, V. L. (2021). Marine harmful algal blooms (HABs) in the United States: History, current status and future trends. Harmful Algae, 102

Citations 97[2]

Cited References 428

Abstract Snippet

Harmful algal blooms (HABs) are diverse phenomena involving multiple. species and classes of algae that occupy a broad range of habitats from lakes to oceans and produce a multiplicity of toxins or bioactive compounds that impact many different resources.

Journal Information

Title: Harmful Algae

Publisher: Elsevier

JIF: 6.6[3] **Quartile:** Q1[4]

Ecosystem Based Management of Marine Resources

No.	Article Title	Citations
1	Global economic costs of aquatic invasive alien species	116
2	Microplastics and environmental pollutants: Key interaction and toxicology in aquatic and soil environments	113
3	Impacts of Plastic Pollution on Ecosystem Services, Sustainable Development Goals, and Need to Focus on Circular Economy and Policy Interventions	103
4	A review of the combined effects of climate change and other local human stressors on the marine environment	71
5	Designing a blueprint for coral reef survival	45
6	Policy responses to reduce single-use plastic marine pollution in the Caribbean	39
7	Seascape ecology: identifying research priorities for an emerging ocean sustainability science	32
8	Climate alters the migration phenology of coastal marine species	26
9	Automatic detection of fish and tracking of movement for ecology	23
10	Marine artificial reefs, a meta-analysis of their design, objectives and effectiveness	22

Cuthbert, R. N., Pattison, Z., Taylor, N. G., Verbrugge, L., Diagne, C., Ahmed, D. A., Leroy, B., Angulo, E., Briski, E., Capinha, C., Catford, J. A., Dalu, T., Kourantidou, M., Kramer, A. M., Renault, D., Wasserman, R. J., & Courchamp, F. (2021). Global economic costs of aquatic invasive alien species. Science of the Total Environment, 775

Citations 116[2]

Cited References 79

Abstract Snippet

Much research effort has been invested in understanding ecological impacts of invasive alien species (IAS) across ecosystems and taxonomic groups, but empirical studies about economic effects lack synthesis. We determine patterns and trends in economic costs of aquatic IAS by examining...

Journal Information

Title: Science of the Total Environment

Publisher: Elsevier

JIF: 9.8[3] **Quartile:** Q1[4]

Aquaculture

No.	Article Title	Citations
1	Current Status of the Algae Production Industry in Europe: An Emerging Sector of the Blue Bioeconomy	168
2	The functionality of probiotics in aquaculture: An overview	138
3	Probiotics, prebiotics, and synbiotics used to control vibriosis in fish: A review	77
4	Single cell protein: Sources, mechanism of production, nutritional value and its uses in aquaculture nutrition	76
5	Overview of the latest developments in the role of probiotics, prebiotics and synbiotics in shrimp aquaculture	55
6	Genomic selection for parasitic ciliate Cryptocaryon irritans resistance in large yellow croaker	49
7	A meta-analysis of the effects of replacing fish meals with insect meals on growth performance of fish	48
8	Application of machine learning in intelligent fish aquaculture: A review	47
9	Habitat value of bivalve shellfish and seaweed aquaculture for fish and invertebrates: Pathways, synthesis and next steps	44
10	Hematological methods in fish-Not only for beginners	43

Araujo, R., Calderon, F. V., Lopez, J. S., Azevedo, I. C., Bruhn, A., Fluch, S., Tasende, M. G., Ghaderiardakani, F., Ilmjarv, T., Laurans, M., Mac Monagail, M., Mangini, S., Stefansson, T., & Ullmann, J. (2021). Current Status of the Algae Production Industry in Europe: An Emerging Sector of the Blue Bioeconomy. Frontiers in Marine Science, 7

Citations
168[2]

Cited References
161

Abstract Snippet

The EU Bioeconomy Strategy aims to support the sustainable growth and development of the EU bio-based sectors while creating jobs and services. Despite the recognized potential of the algae biomass value chain, significant knowledge gaps still exist regarding the dimension, organization of Europe...

Journal Information

Title: Frontiers in Marine Science

Publisher: Frontiers Media SA,

JIF: 3.7[3] **Quartile:** Q1[4]

Environment Pollution and Climate

No.	Article Title	Citations
1	Agriculture Development, Pesticide Application and Its Impact on the Environment	303
2	Heavy metal water pollution: A fresh look about hazards, novel and conventional remediation methods	211
3	Exploring the relationships among innovation, financial sector development and environmental pollution in selected industrialized countries	78
4	Environmental implications of N-shaped environmental Kuznets curve for E7 countries	68
5	The fundamental links between climate change and marine plastic pollution	62
6	Recirculating aquaculture systems (RAS): Environmental solution and climate change adaptation	62
7	Micro- and nano-plastic pollution: Behavior, microbial ecology, and remediation technologies	55
8	Smart control strategy for effective hydrocarbon and carbon monoxide emission reduction on a conventional diesel engine using the pooled impact of pre-and post-combustion techniques	49
9	Impacts of green roofs on water, temperature, and air quality: A bibliometric review	47
10	Overview of Biodiesel Combustion in Mitigating the Adverse Impacts of Engine Emissions on the Sustainable Human-Environment Scenario	32

Tudi, M., Ruan, H. D., Wang, L., Lyu, J., Sadler, R., Connell, D., Chu, C., & Dung Tri Phung. (2021). Agriculture Development, Pesticide Application and Its Impact on the Environment. International Journal of Environmental Research and Public Health, 18(3)

Citations 303[2]

Cited References 206

Abstract Snippet

Pesticides are indispensable in agricultural production. They have been used by farmers to control weeds and insects, and their remarkable increases in agricultural products have been reported. The increase in the world's population in the 20th century could not have been possible...

Journal Information

Title: Inter. J. of Environmental Research and Public Health

Publisher: MDPI

JIF: 4.61[3] **Quartile:** Q1[4]

Desert Agriculture and Ecosystems

No.	Article Title	Citations
1	Combatting global grassland degradation	193
2	Variations in technical efficiency of farmers with distinct land size across agro-climatic zones: Evidence from India	72
3	The global distribution and environmental drivers of aboveground versus belowground plant biomass	46
4	Stochastic community assembly decreases soil fungal richness in arid ecosystems	29
5	Quantitative Evaluation of Soil Quality Using Principal Component Analysis: The Case Study of El-Fayoum Depression Egypt	23
6	Development of a Spatial Model for Soil Quality Assessment under Arid and Semi-Arid Conditions	22
7	Experiences and challenges of agricultural development in an artificial oasis: A review	19
8	Assessing the impacts of irrigated agriculture on hydrological regimes in an oasis-desert system	16
9	Assessing irrigated water utilization to optimize irrigation schedule in the oasis-desert ecotone of Hexi Corridor of China	13
10	Assessment of Rangeland Degradation in New Mexico Using Time Series Segmentation and Residual Trend Analysis (TSS-RESTREND)	10

Bardgett, R. D., Bullock, J. M., Lavorel, S., Manning, P., Schaffner, U., Ostle, N., Chomel, M., Durigan, G., Fry, E. L., Johnson, D., Lavallee, J. M., Le Provost, G., Luo, S., Png, K., Sankaran, M., Hou, X., Zhou, H., Ma, L., Ren, W., . . . Shi, H. (2021). Combatting global grassland degradation. Nature Reviews Earth & Environment, 2(10), 720-735

Citations 193[2]

Cited References 155

Abstract Snippet

Grasslands provide key ecosystem services, but their protection is often ignored in sustainable policy. This Perspective describes grassland degradation and sets out the steps needed to protect these systems and promote their restoration.

Journal Information

Title: Nature Reviews Earth & Environment

Publisher: Springernature

JIF: 42.1[3] **Quartile:** Q1[4]

Crisis Decision Support

No.	Article Title	Citations
1	Energy trilemma based prioritization of waste-to-energy technologies: Implications for post-COVID-19 green economic recovery in Pakistan	94
2	Burnout Among Healthcare Workers in the COVID 19 Era: A Review of the Existing Literature	74
3	A hover view over effectual approaches on pandemic management for sustainable cities-The endowment of prospective technologies with revitalization strategies	62
4	Lockdown-Related Disparities Experienced by People with Disabilities during the First Wave of the COVID-19 Pandemic: Scoping Review with Thematic Analysis	50
5	Extended valence theory perspective on consumers' e-waste recycling intentions in Japan	50
6	COVID-19 Response in Thailand and Its Implications on Future Preparedness	42
7	Hazardous infectious waste collection and government aid distribution during COVID-19: A robust mathematical leader-follower model approach	35
8	Recovery agenda for sustainable development post COVID-19 at the country level: developing a fuzzy action priority surface	25
9	Does Risk Awareness of COVID-19 Affect Visits to National Parks? Analyzing the Tourist Decision-Making Process Using the Theory of Planned Behavior	21
10	Toward a holistic understanding of pastoralism	19

Shah, S. A. A., Cheng Longsheng, Solangi, Y. A., Ahmad, M., & Ali, S. (2021). Energy trilemma based prioritization of waste-to-energy technologies: Implications for post-COVID-19 green economic recovery in Pakistan. Journal of Cleaner Production, 284

Citations 94[2]

Cited References 51

Abstract Snippet

As lockdown eases, economic activities resume in Pakistan. If the country continues to follow business as-usual (BAU) then it is anticipated that carbon output could surge past pre-COVID-19 levels that means more disasters in future. Thus, it is an unprecedented opportunity to shift from...

Journal Information

Title: Journal of Cleaner Production

Publisher: Elsevier SCI. LTD.

JIF: 11.1[3] **Quartile:** Q1[4]

Biotechnology

No.	Article Title	Citations
1	RCSB Protein Data Bank: powerful new tools for exploring 3D structures of biological macromolecules for basic and applied research and education in fundamental biology, biomedicine, biotechnology, bioengineering and energy sciences	566
2	Database resources of the National Center for Biotechnology Information	286
3	Survival analysis across the entire transcriptome identifies biomarkers with the highest prognostic power in breast cancer	263
4	Survival analysis across the entire transcriptome identifies biomarkers with the highest prognostic power in breast cancer	263
5	RefSeq: expanding the Prokaryotic Genome Annotation Pipeline reach with protein family model curation	261
6	Metal-Organic Framework-Based Enzyme Biocomposites	234
7	Strategies for delivering therapeutics across the blood-brain barrier	198
8	Metabolism Characteristics of Lactic Acid Bacteria and the Expanding Applications in Food Industry	128
9	Review on circular RNAs and new insights into their roles in cancer	110
10	A Hitchhiker's Guide to Click-Chemistry with Nucleic Acids	107

Burley, S. K., Bhikadiya, C., Bi, C., Bittrich, S., Chen, L., Crichlow, G., V., Christie, C. H., Dalenberg, K., Di Costanzo, L., Duarte, J. M., et al.(2021). RCSB Protein Data Bank: powerful new tools for exploring 3D structures of biological macromolecules for basic and applied research and education in fundamental biology, biomedicine, biotechnology, bioengineering and energy sciences. Nucleic Acids Research, 49

Citations 566[2]

Cited References 74

Abstract Snippet

The Research Collaboratory for Structural Bioinformatics Protein Data Bank (RCSB PDB), the US data center for the global PDB archive and a founding member of the Worldwide Protein Data Bank partnership, serves tens of thousands of data depositors in the Americas and macromolecular...

Journal Information

Title: Nucleic Acids Research

Publisher: Oxford Univ. Press

JIF: 14.9[3] **Quartile:** Q1[4]

Food and Nutrition

No.	Article Title	Citations
1	Consumption of ultra-processed foods and health status: a systematic review and meta-analysis	295
2	Diet and physical activity during the coronavirus disease 2019 (COVID-19) lockdown (March-May 2020): results from the French NutriNet-Sante cohort study	242
3	Modification approaches of plant-based proteins to improve their techno-functionality and use in food products	129
4	Dietary microRNAs: Current status and perspective in food science	122
5	Functionality of Food Components and Emerging Technologies	116
6	Dietary recommendations during the COVID-19 pandemic	115
7	Nutritional Components in Western Diet Versus Mediterranean Diet at the Gut Microbiota-Immune System Interplay. Implications for Health and Disease	102
8	Articulating the effect of food systems innovation on the Sustainable Development Goals	86
9	Eating Behaviour Changes during the COVID-19 Pandemic: A Systematic Review of Longitudinal Studies	57
10	Changes in food purchases after the Chilean policies on food labelling, marketing, and sales in schools: a before and after study	49

Pagliai, G., Dinu, M., Madarena, M. P., Bonaccio, M., Iacoviello, L., & Sofi, F. (2021). Consumption of ultra-processed foods and health status: a systematic review and meta-analysis. British Journal of Nutrition, 125(3)

Citations 295[2]

Cited References 48

Abstract Snippet

Increasing evidence suggests that high consumption of ultra-processed foods (UPF) is associated with an increase in non-communicable diseases, overweight and obesity. The present study systematically reviewed all observational studies that investigated the association...

Journal Information

Title: British Journal of Nutrition

Publisher: Cambridge Univ. Press

JIF: 3.6[3] **Quartile:** Q3[4]

Construction and Building Materials

No.	Article Title	Citations
1	Multifunctional Applications of Biochar Beyond Carbon Storage.	182
2	A Comprehensive Review on Recycled Aggregate and Recycled Aggregate Concrete.	160
3	Fly Ash-Based Eco-Friendly Geopolymer Concrete: A Critical Review of the Long-Term Durability Properties.	149
4	Effect of Pumice Powder and Nano-Clay on the Strength and Permeability of Fiber-Reinforced Pervious Concrete Incorporating Recycled Concrete Aggregate.	128
5	Recycling of Landfill Wastes (Tyres, Plastics and Glass) in Construction - A Review on Global Waste Generation, Performance, Application and Future Opportunities.	121
6	Effects of Nano Cotton Stalk and Palm Leaf Ashes on Ultrahigh-Performance Concrete Properties Incorporating Recycled Concrete Aggregates.	119
7	Extrusion-Based Concrete 3D Printing from a Material Perspective: A State-of-the-Art Review.	118
8	Hydration, Shrinkage, Pore Structure and Fractal Dimension of Silica Fume Modified Low Heat Portland Cement-Based Materials.	117
9	Mechanical Performances and Microstructures of Metakaolin Contained UHPC Matrix Under Steam Curing Conditions.	116
10	Prediction of Chloride Diffusivity in Concrete Using Artificial Neural Network: Modelling and Performance Evaluation.	114

Bolan, N., Hoang, S. A., Beiyuan, J., Gupta, S., Hou, D., Karakoti, A., Joseph, S., Jung, S., Kim, K., Kirkham, Kwon, E. E., Ok, Y. S., Perera, V., Rinklebe, J., Shaheen, S. M., Sarkar, B., Sarmah, A. K., . . . Van Zwieten, L. (2022). Multifunctional applications of biochar beyond carbon storage. International Materials Reviews, 67(2), 150-200

Citations 182[2]

Cited References 473

Abstract Snippet

Biochar is produced as a charred material with high surface area and abundant functional groups by pyrolysis, which refers to the process of thermochemical decomposition of organic material at elevated temperatures in the absence of oxygen. The carbon component in biochar is relatively stable...

Journal Information

Title: International Materials Reviews

Publisher: Taylor & Francis LTD.

JIF: 16.1[3] **Quartile:** Q1[4]

Nanotechnology – Advanced Materials

No.	Article Title	Citations
1	Nanomaterials: A Review of Synthesis Methods, Properties, Recent progress, and Challenges.	450
2	Fluorinated Interphase Enables Reversible Aqueous Zinc Battery Chemistries.	314
3	Protocols for Synthesis of Nanomaterials, Polymers, and Green Materials as Adsorbents for Water Treatment Technologies.	288
4	Poly(N-isopropylacrylamide)-Based Smart Hydrogels: Design, Properties and Applications.	281
5	Starch, Cellulose, Pectin, Gum, Alginate, Chitin and Chitosan Derived (nano) Materials for Sustainable Water Treatment: A Review.	276
6	Tailoring electrolyte solvation for Li metal batteries cycled at ultra-low temperature.	245
7	Dimensional Design and Core-Shell Engineering of Nanomaterials for Electromagnetic Wave Absorption.	240
8	MIL-101-Derived Mesoporous Carbon Supporting Highly Exposed Fe Single-Atom Sites as Efficient Oxygen Reduction Reaction Catalysts.	234
9	Polycrystalline SnSe with a Thermoelectric Figure of Merit Greater than the Single Crystal.	213
10	Recent Progress in Flexible Tactile Sensors for Human-Interactive Systems: From Sensors to Advanced Applications.	137

Baig, N., Kammakakam, I., & Falath, W. (2021). Nanomaterials: a review of synthesis methods, properties, recent progress, and challenges. Materials Advances, 2(6), 1821-1871

Citations
450[2]

Cited References
548

Abstract Snippet

Nanomaterials have emerged as an amazing class of materials that consists of a broad spectrum of examples with at least one dimension in the range of 1 to 100 nm. Exceptionally high surface areas can be

Journal Information

Title: Materials Advances

Publisher: Royal Soc Chemistry

JIF: 5.0[3] **Quartile:** N/A

Sustainability and Reliability of Infrastructure

No.	Article Title	Citations
1	Hybrid Nonlinear and Machine Learning Methods for Analyzing Factors Influencing the Performance of Large-Scale Transport Infrastructure.	122
2	Potential applications of geopolymer concrete in construction: A review.	113
3	Durability Deterioration of Concrete Under Marine Environment from Material to Structure: A Critical review.	93
4	BIM, Machine Learning and Computer Vision Techniques in Underground Construction: Current Status and Future Perspectives.	73
5	Cooling Hot Cities: a Systematic and Critical Review of the Numerical Modelling Literature.	56
6	Image-Based Crack Detection Methods: A Review.	47
7	Digital Twin Aided Vulnerability Assessment and Risk-Based Maintenance Planning of Bridge Infrastructures Exposed to Extreme Conditions.	40
8	Fire Resistance of Geopolymer Concrete: A Critical review.	33
9	Toward Sustainable Urban Drainage Infrastructure Planning: A Combined Multiobjective Optimization and Multicriteria Decision-Making Platform.	16
10	A Bayesian Machine Learning Approach for Inverse Prediction of High-Performance Concrete Ingredients with Targeted Performance.	13

Song, Y., Wu, P., Li, Q., Liu, Y., & Karunaratne, L. (2022). Hybrid Nonlinear and Machine Learning Methods for Analyzing Factors Influencing the Performance of Large-Scale Transport Infrastructure. Ieee Transactions on Intelligent Transportation Systems, 23(8), 12287-12300

Citations 122[2]

Cited References 80

Abstract Snippet

Strategic maintenance is essential for sustainable road infrastructure development. Accurate estimation of road maintenance effects can support the assessment of maintenance strategies and reasonable allocation of budgets and resources.

Journal Information

Title: IEEE Transactions on Intelligent Transportation Systems

Publisher: IEEE-INST Electrical Electronics Engineers INC.

JIF: 8.5[3] **Quartile:** Q1[4]

Renewable Energy

No.	Article Title	Citations
1	Single-Layered Organic Photovoltaics with Double Cascading Charge Transport Pathways: 18% efficiencies.	453
2	Clean and Affordable Hydrogen Fuel from Alkaline Water Splitting: Past, Recent Progress, and Future Prospects.	441
3	State of the Art and Prospects for Halide Perovskite Nanocrystals	374
4	Electrocatalysis for CO2 Conversion: from Fundamentals to Value-Added Products.	342
5	Hydrogen Energy Systems: A Critical Review of Technologies, Applications, Trends and Challenges.	338
6	Intact 2D/3D Halide Junction Perovskite Solar Cells via Solid-Phase in-Plane Growth.	258
7	. Critical Review of Energy Storage Systems.	246
8	Ecological Impacts of Run -of -River Hydropower Plants? Current Status and Future Prospects on the Brink of Energy transition.	233
9	Recent Progress on Flat Plate Solar Collectors and Photovoltaic Systems in the Presence of Nanofluid: A Review.	229
10	Environmental Impacts of Solar Energy Systems: A Review.	213

Zhang, M., Zhu, L., Zhou, G., Hao, T., Qiu, C., Zhao, Z., Hu, Q., Larson, B. W., Zhu, H., Ma, Z., Tang, Z., Feng, W., Zhang, Y., Russell, T. P., & Liu, F. (2021). Single-layered organic photovoltaics with double cascading charge transport pathways: 18% efficiencies. Nature Communications, 12(1), 309

Citations
453[2]

Cited References
52

Abstract Snippet

The chemical structure of donors and acceptors limit the power conversion efficiencies achievable with active layers of binary donor-acceptor mixtures. Here, using quaternary blends, double cascading energy level alignment in bulk heterojunction organic photovoltaic active layers are realized...

Journal Information

Title: Nature Communications

Publisher: Nature Portfolio

JIF: 16.6[3] **Quartile:** Q1[4]

Energy Efficiency Technologies

No.	Article Title	Citations
1	Efficient Perovskite Solar Cells via Improved Carrier Management.	1446
2	Emerging S-Scheme Photocatalyst.	520
3	Promises and Challenges of Next-Generation "Beyond Li-ion" Batteries for Electric Vehicles and Grid Decarbonization.	424
4	Photocatalytic Solar Hydrogen Production from Water on a 100-m(2) scale.	406
5	Challenges Toward Carbon Neutrality in China: Strategies and Countermeasures.	352
6	Ten Years of Progress in the Synthesis and Development of MXenes.	276
7	A History and Perspective of Non-Fullerene Electron Acceptors for Organic Solar Cells	263
8	Tailoring Electrolyte Solvation for Li Metal Batteries cycled at ultra-low temperature.	245
9	Nanoscale Localized Contacts for High Fill Factors in Polymer-Passivated Perovskite Solar Cells.	199
10	Atomic-Level Charge Separation Strategies in Semiconductor-Based Photocatalysts.	184

Yoo, J. J., Seo, G., Chua, M. R., Park, T. G., Lu, Y., Rotermund, F., Kim, Y., Moon, C. S., Jeon, N. J., Correa-Baena, J., Bulovic, V., Shin, S. S., Bawendi, M. G., & Seo, J. (2021). Efficient perovskite solar cells via improved carrier management. Nature, 590

Citations 1,446[2]

Cited References 50

Abstract Snippet

Metal halide perovskite solar cells (PSCs) are an emerging photovoltaic technology with the potential to disrupt the mature silicon solar cell market. Great improvements in device performance over the past few years, thanks to the development of fabrication protocols(1-3), compositions...

Journal Information

Title: Nature

Publisher: Nature Portfolio

JIF: 64.8[3] **Quartile:** Q1[4]

Water Resources Development & Management

No.	Article Title	Citations
1	Review on Methylene Blue: Its Properties, Uses, Toxicity and Photodegradation	183
2	Peracetic acid-based advanced oxidation processes for decontamination and disinfection of water: A review	158
3	A comprehensive review of deep learning applications in hydrology and water resources	115
4	New insights into the vertical distribution and microbial degradation of microplastics in urban river sediments	106
5	Various Natural and Anthropogenic Factors Responsible for Water Quality Degradation: A Review	77
6	Evaluating the stormwater management model to improve urban water allocation system in drought conditions	74
7	Advanced Functional Nanostructures based on Magnetic Iron Oxide Nanomaterials for Water Remediation: A Review	71
8	Riverine microplastic and microbial community compositions: A field study in the Netherlands	64
9	Quantarctica, an integrated mapping environment for Antarctica, the Southern Ocean, and sub-Antarctic islands	59
10	Prediction of Water Level and Water Quality Using a CNN-LSTM Combined Deep Learning Approach	58

Khan, I., Saeed, K., Zekker, I., Zhang, B., Hendi, A. H., Ahmad, A., Ahmad, S., Zada, N., Ahmad, H., Shah, L. A., Shah, T., & Khan, I. (2022). Review on Methylene Blue: Its Properties, Uses, Toxicity and Photodegradation. Water, 14(2), 242

Citations 183[2]

Cited References 291

Abstract Snippet

The unavailability of clean drinking water is one of the significant health issues in modern times. Industrial dyes are one of the dominant chemicals that make water unfit for drinking. Among these dyes, methylene blue (MB) is toxic, carcinogenic, and non-biodegradable and can cause a severe threat...

Journal Information

Title: Water

Publisher: MDPI

JIF: 3.4[3] Quartile: Q2[4]

Wastewater Treatment & Reclamation Technologies

No.	Article Title	Citations
1	A review of the recent advances on the treatment of industrial wastewaters by Sulfate Radical-based Advanced Oxidation Processes (SR-AOPs)	470
2	Recent advances in metal-organic framework membranes for water treatment: A review	371
3	A review on conventional and novel materials towards heavy metal adsorption in wastewater treatment application	359
4	Removal of heavy metal ions from wastewater: a comprehensive and critical review	336
5	Protocols for synthesis of nanomaterials, polymers, and green materials as adsorbents for water treatment technologies	272
6	Biosorption of aluminum ions from aqueous solutions using non-conventional low-cost materials: A review	228
7	Recent advances on the removal of dyes from wastewater using various adsorbents: a critical review	219
8	A critical review on advances in the practices and perspectives for the treatment of dye industry wastewater	203
9	A Review on Heavy Metal Ions and Containing Dyes Removal Through Graphene Oxide-Based Adsorption Strategies for Textile Wastewater Treatment	177
10	Electrochemical advanced oxidation processes for wastewater treatment: Advances in formation and detection of reactive species and mechanisms	175

Giannakis, S., Lin, K. A., & Ghanbari, F. (2021). A review of the recent advances on the treatment of industrial wastewaters by Sulfate Radical-based Advanced Oxidation Processes (SR-AOPs). Chemical Engineering Journal, 406

Citations 470[2]

Cited References 239

Abstract Snippet

Over the last years, Sulfate Radical-based Advanced Oxidation Processes (SR-AOPs) have received considerable attention due to their high versatility and efficacy in disinfection and decontamination. Their advantages over classical AOPs, the generation of sulfate radicals...

Journal Information

Title: Chemical Engineering Journal

Publisher: Elsevier Science SA.

JIF: 15.1[3] **Quartile:** Q1[4]

Water Desalination Technologies

No.	Article Title	Citations
1	A Critical Review on Thin-Film Nanocomposite Membranes with Interlayered Structure: Mechanisms, Recent Developments, and Environmental Applications	193
2	Same materials, bigger output: A reversibly transformable 2D-3D photothermal evaporator for highly efficient solar steam generation	154
3	Dual-Zone Photothermal Evaporator for Antisalt Accumulation and Highly Efficient Solar Steam Generation	145
4	Seawater desalination by reverse osmosis: Current development and future challenges in membrane fabrication ? A review	142
5	Engineering antifouling reverse osmosis membranes: A review	120
6	Manipulating unidirectional fluid transportation to drive sustainable solar water extraction and brine-drenching induced energy generation	118
7	Forward osmosis technology for water treatment: Recent advances and future perspectives	97
8	State-of-the-art of renewable energy sources used in water desalination: Present and future prospects	95
9	Solar-driven evaporators for water treatment: challenges and opportunities	90
10	Semiconductor photothermal materials enabling efficient solar steam generation toward desalination and wastewater treatment	89

Yang, Z., Sun, P., Li, X., Gan, B., Wang, L., Song, X., Park, H., & Tang, C. Y. (2020). A Critical Review on Thin-Film Nanocomposite Membranes with Interlayered Structure: Mechanisms, Recent Developments, and Environmental Applications. Environmental Science & Technology, 54(24)

Citations 193[2]

Cited References 293

Abstract Snippet

The separation properties of polyamide reverse osmosis and nanofiltration membranes, widely applied for desalination and water reuse, are constrained by the permeability-selectivity upper bound. Although thin-film nanocomposite (TFN) membranes incorporating nanomaterials permeance...

Journal Information

Title: Environmental Science & Technology

Publisher: AMER Chemical SOC.

JIF: 11.4[3] **Quartile:** Q1[4]

Improved Oil Recovery

No.	Article Title	Citations
1	Co-Pyrolysis of Waste Plastic and Solid Biomass for Synergistic Production of Biofuels and Chemicals-A Review	170
2	A Review of Carbon Capture and Utilisation as a Co2 Abatement Opportunity within The Ewf Nexus	101
3	Modern Developmental Aspects in the Field of Economical Harvesting and Biodiesel Production from Microalgae Biomass	93
4	Renewable Hydrogen Production by Dark-Fermentation: Current Status, Challenges and Perspectives	81
5	Increased Performance and Antifouling of Mixed-Matrix Membranes of Cellulose Acetate with Hydrophilic Nanoparticles of Polydopamine-Sulfobetaine Methacrylate for Oil-Water Separation	65
6	Xanthan Gum-Derived Materials for Applications in Environment and Eco-Friendly Materials: A Review	64
7	Enhanced Oil Recovery Mechanisms of Polymer Flooding in a Heterogeneous Oil Reservoir	58
8	Laboratory Study and Field Application of Amphiphilic Molybdenum Disulfide Nanosheets for Enhanced Oil Recovery	50
9	Geomechanical Modeling Using the Depth-of-Damage Approach to Achieve Successful Underbalanced Drilling in the Gulf of Suez Rift Basin	44
10	An Analysis of Major Scientific Problems and Research Paths of Gulong Shale Oil in Daqing Oilfield, Ne China	41

Wang, Z., Burra, K. G., Lei, T., & Gupta, A. K. (2021). Co-pyrolysis of waste plastic and solid biomass for synergistic production of biofuels and chemicals-A review. Progress in Energy and Combustion Science, 84

Citations 170[2]

Cited References 259

Abstract Snippet

The amount of plastics disposed from modern lifestyles have increased sharply in recent years. Solid biomass is an abundant energy resource that exists worldwide. Transformation of these waste plastics and solid biomass feedstock mixtures via co-pyrolysis can provide synergistic...

Journal Information

Title: Progress in Energy and Combustion Science

Publisher: Pergamon-Elsevier Science LTD

JIF: 29.5[3] **Quartile:** Q1[4]

Refining Capacity Expansion and Flexibility

No.	Article Title	Citations
1	Microalgae Biomass as a Sustainable Source for Biofuel, Biochemical and Biobased Value-Added Products: an Integrated Biorefinery Concept	108
2	Effect of Reaction Temperature on the Conversion of Algal Biomass to Bio-Oil and Biochar through Pyrolysis and Hydrothermal Liquefaction	75
3	Co-Pyrolysis of Coal and Raw/Torrefied Biomass: A Review on Chemistry, Kinetics and Implementation	64
4	Waste Refinery: The Valorization of Waste Plastics and End-of-Life Tires in Refinery Units. A Review	62
5	Properties and Utilization of Waste Tire Pyrolysis Oil: A Mini Review	57
6	Upgrading of Bio-Oil from Thermochemical Conversion of Various Biomass - Mechanism, Challenges and Opportunities	51
7	A Comprehensive Review of Biomass Based Thermochemical Conversion Technologies Integrated with Co2 Capture and Utilisation within Beccs Networks	43
8	Assessing Hybrid Solar-Wind Potential for Industrial Decarbonization Strategies: Global Shift to Green Development	40
9	Large Scale Application of Carbon Capture to Process Industries - A Review	30
10	Advances in Upgradation of Pyrolysis Bio-Oil and Biochar Towards Improvement in Bio-Refinery Economics: A Comprehensive Review	28

Siddiki, S. Y. A., Mofijur, M., Kumar, P. S., Ahmed, S. F., Inayat, A., Kusumo, F., Badruddin, I. A., Khan, T. M. Y., Nghiem, L. D., Ong, H. C., & Mahlia, T. M., I. (2022). Microalgae biomass as a sustainable source for biofuel, biochemical and biobased value-added products: An integrated biorefinery concept. Fuel, 307

Citations 108[2]

Cited References 398

Abstract Snippet

Microalgal biomass has been proved to be a sustainable source for biofuels including bio-oil, biodiesel, bioethanol, biomethane, etc. One of the collateral benefits of integrating the use of microalgal technologies in the industry is microalgae's ability to capture carbon dioxide

Journal Information

Title: Fuel

Publisher: Elsevier Science LTD

JIF: 7.4[3] Quartile: Q1[4]

Optimization of Petroleum Refinery Processes

No.	Article Title	Citations
1	Clean and Affordable Hydrogen Fuel From Alkaline Water Splitting: Past, Recent Progress, and Future Prospects	398
2	S-Scheme Heterojunction Based on P-Type Znmn2o4 and N-Type Zno with Improved Photocatalytic Co2 Reduction Activity	191
3	Underground Hydrogen Storage: A Comprehensive Review	174
4	Carbon Nanotube-Incorporated Alumina as a Support for Moni Catalysts for The Efficient Hydrodesulfurization of Thiophenes	160
5	Role of Energy Storage Systems in Energy Transition from Fossil Fuels to Renewables	139
6	Review on Recent Advances in Adsorptive Desulfurization	116
7	Stabilization Mechanism and Chemical Demulsification of Water-in-Oil and Oil-In-Water Emulsions in Petroleum Industry: A Review	93
8	Liquid Organic Hydrogen Carriers and Alternatives for International Transport of Renewable Hydrogen	83
9	Effect of Reaction Temperature on the Conversion of Algal Biomass to Bio-Oil and Biochar through Pyrolysis and Hydrothermal Liquefaction	75
10	Steam Reforming of Methanol for Hydrogen Production: A Critical Analysis of Catalysis, Processes, and Scope	63

Yu, Z., Duan, Y., Feng, X., Yu, X., Gao, M., & Yu, S. (2021). Clean and Affordable Hydrogen Fuel from Alkaline Water Splitting: Past, Recent Progress, and Future Prospects. Advanced Materials, 33(31)

Citations
398[2]

Cited References
308

Abstract Snippet

Hydrogen economy has emerged as a very promising alternative to the current hydrocarbon economy, which involves the process of harvesting renewable energy to split water into hydrogen and oxygen and then further utilization of clean hydrogen fuel.

Journal Information

Title: Advanced Materials

Publisher: Willey-V C H

JIF: 29.4[3] **Quartile:** Q1[4]

Corrosion Assessment And Mitigation Technology

No.	Article Title	Citations
1	Research Advances in Magnesium and Magnesium Alloys Worldwide in 2020	260
2	Stability Challenges of Electrocatalytic Oxygen Evolution Reaction: From Mechanistic Understanding to Reactor Design	180
3	Multicomponent High-Entropy Cantor Alloys	176
4	Recent Progress in Surface Modification of Metals Coated by Plasma Electrolytic Oxidation: Principle, Structure, and Performance	172
5	Towards Developing Mg Alloys with Simultaneously Improved Strength and Corrosion Resistance via Re Alloying	140
6	Recent Advances on Environmental Corrosion Behavior and Mechanism of High-Entropy Alloys	137
7	Additive Manufacturing of High Entropy Alloys: a Practical Review	121
8	A Comparative Study on Microstructure and Properties of Traditional Laser Cladding and High-Speed Laser Cladding of Ni45 Alloy Coatings	97
9	Applications of Superhydrophobic Coatings in Anti-Icing: Theory, Mechanisms, Impact Factors, Challenges and Perspectives	78
10	Recent Advances of Polyaniline Composites in Anticorrosive Coatings: a Review	67

Yang, Y., Xiong, X., Chen, J., Peng, X., Chen, D., & Pan, F. (2021). Research advances in magnesium and magnesium alloys worldwide in 2020. Journal of Magnesium and Alloys, 9(3), 705-747

Citations 260[2]

Cited References 237

Abstract Snippet

Research on magnesium alloys continues to attract great attention. The results of bibliometric analyses show that microstructure control and mechanical properties of Mg alloys are continuously the main research focus, and the corrosion and protection of Mg alloys are still widely concerned.

Journal Information

Title: Journal of Magnesium and Alloys

Publisher: KEAI Publishing LTD

JIF: 17.6[3] **Quartile:** Q1[4]

Polymeric Products Enhancement & Customization

No.	Article Title	Citations
1	Guidelines for Performing Lignin-First Biorefining	261
2	Two-Dimensional Metal-Organic Framework Materials: Synthesis, Structures, Properties and Applications	260
3	A Comparative Review of Natural and Synthetic Biopolymer Composite Scaffolds	237
4	Recent Progress on Nanocellulose Aerogels: Preparation, Modification, Composite Fabrication, Applications	218
5	Recent Advances in Heavy Metal Removal by Chitosan Based Adsorbents	167
6	Recent Advances in Cellulose and its Derivatives for Oilfield Applications	148
7	Anion Exchange Polyelectrolytes for Membranes and Ionomers	146
8	Conducting Polymers in the Design of Biosensors and Biofuel Cells	137
9	Poly(Lactic Acid): A Versatile Biobased Polymer for the Future with Multifunctional Properties-from Monomer Synthesis, Polymerization Techniques and Molecular Weight Increase to pla Applications	134
10	Polymeric Membranes for Co2 Separation and Capture	112

Abu-Omar, M. M., Barta, K., Beckham, G. T., Luterbacher, J. S., Ralph, J., Rinaldi, R., Roman-Leshkov, Y., Samec, J. S. M., Sels, B. F., & Wang, F. (2021). Guidelines for performing lignin-first biorefining. Energy & Environmental Science, 14(1), 262-292

Citations 261[2]

Cited References 221

Abstract Snippet

The valorisation of the plant biopolymer lignin is now recognised as essential to enabling the economic viability of the lignocellulosic biorefining industry. In this context, the "lignin-first" biorefining approach, in which lignin valorisation is considered in the design phase, has demonstrated the fullest...

Journal Information

Title: Energy & Environmental Science

Publisher: Royal Soc. Chemistry

JIF: 32.5[3] **Quartile:** Q1[4]

Footnotes

1- This chart shows the top 5 journals that recieved the most citations 2020 - 2022, based only on the curated data collected in this document.

2- Data was collected in June 2023 and is subject to change.

3- JCR 2022.

4- The highest available quartile in JCR 2022.