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- Elsevier简介
- ScienceDirect提供优质学术资源
- Scopus助力科研发现和管理

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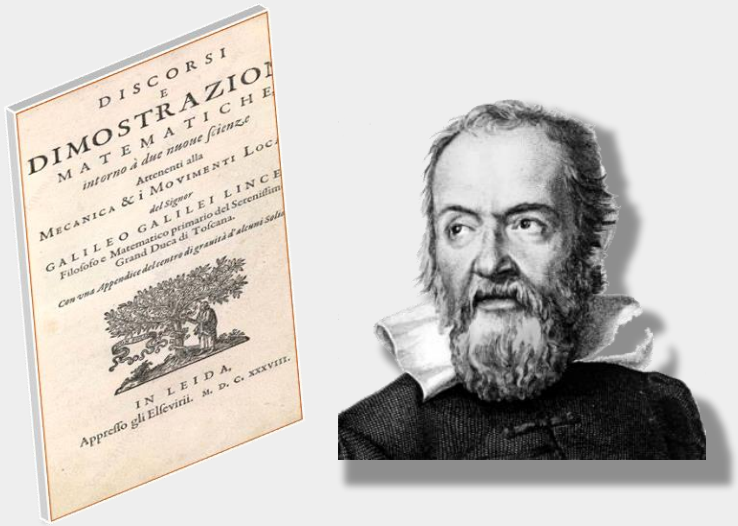

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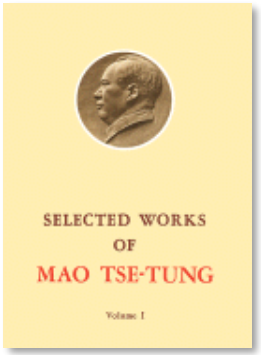

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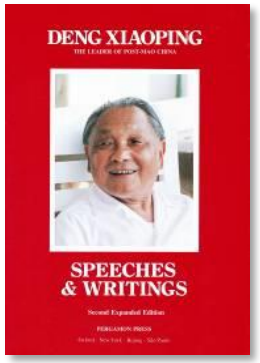

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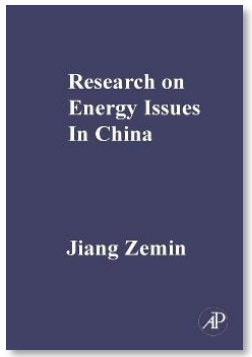

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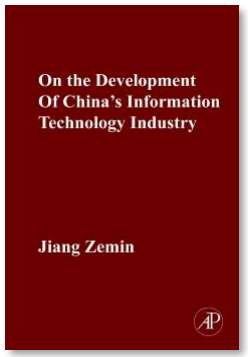

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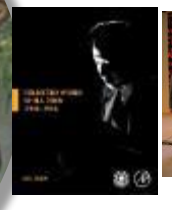

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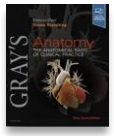

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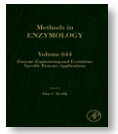

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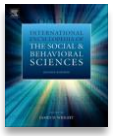

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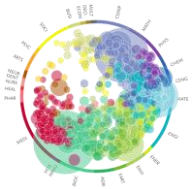

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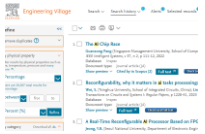

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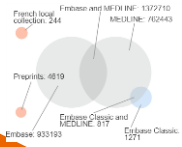

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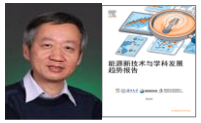

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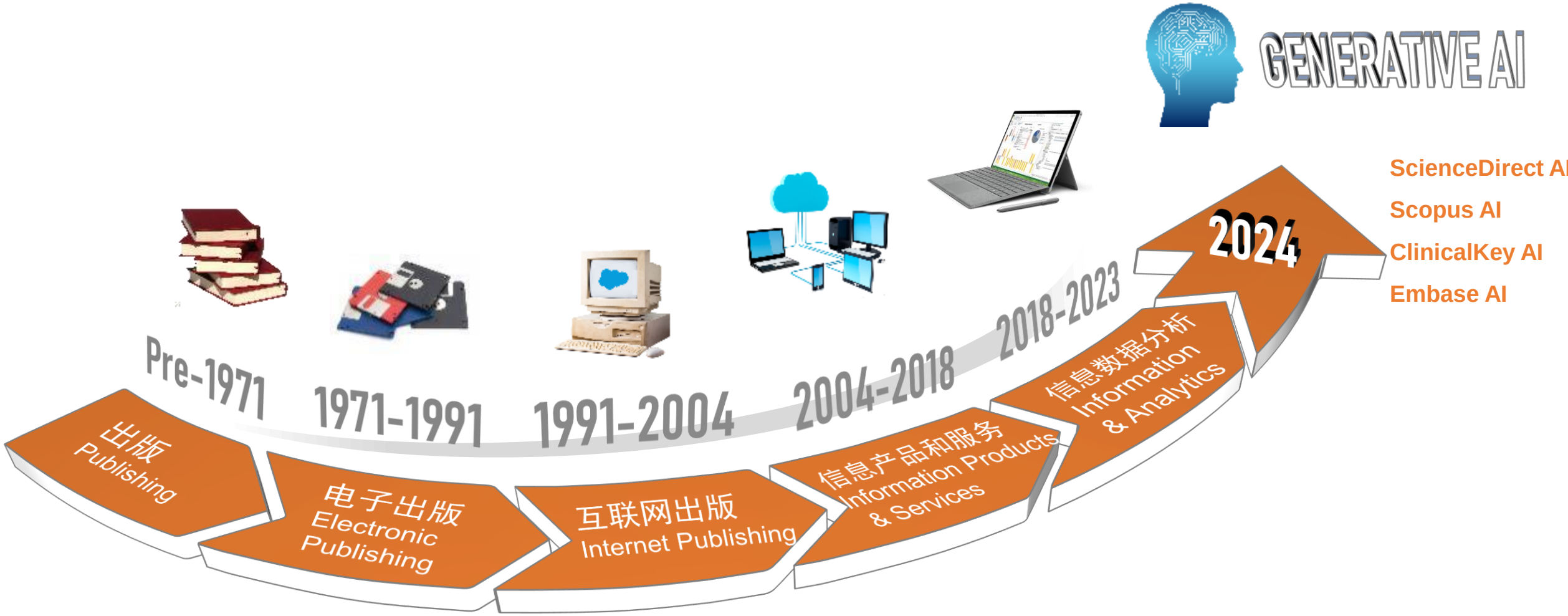
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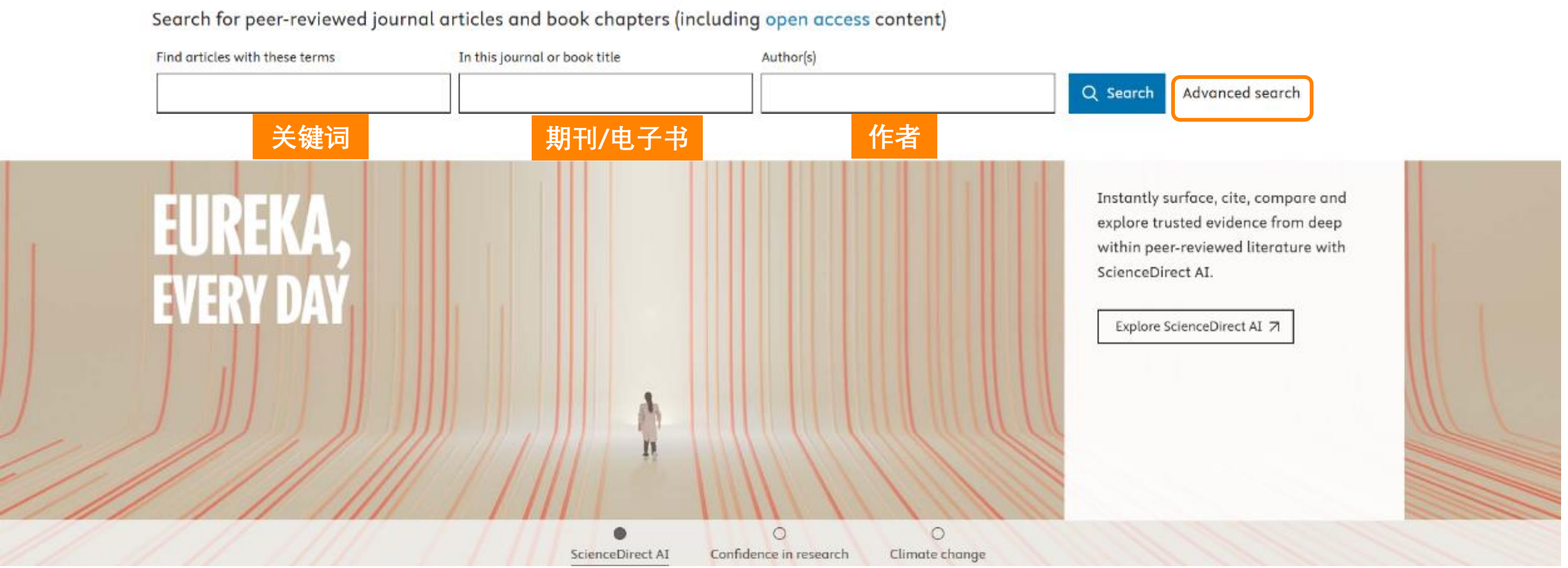

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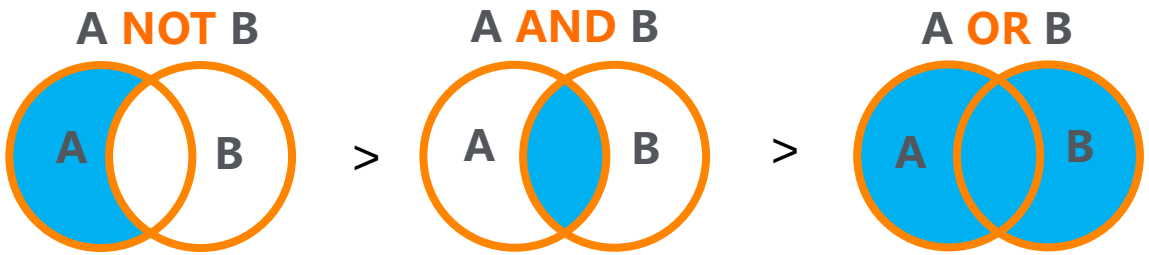

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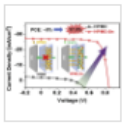
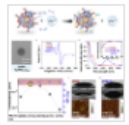
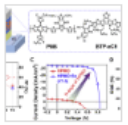
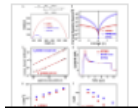
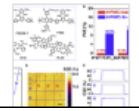

Joule

CellPress

Volume 5, Issue 3, 17 March 2021, Pages 646-658

Article

n-doped inorganic molecular clusters as a new type of hole transport material for efficient organic solar cells

Qian Kang [1], Zhong Zheng [1], Yunfei Zu [1], Qing Liao [1], Pengqing Bi [1], Shaoqing Zhang [2], Yi Yang [1], Bowei Xu [1] ✉, Jianhui Hou [1, 3] ✉

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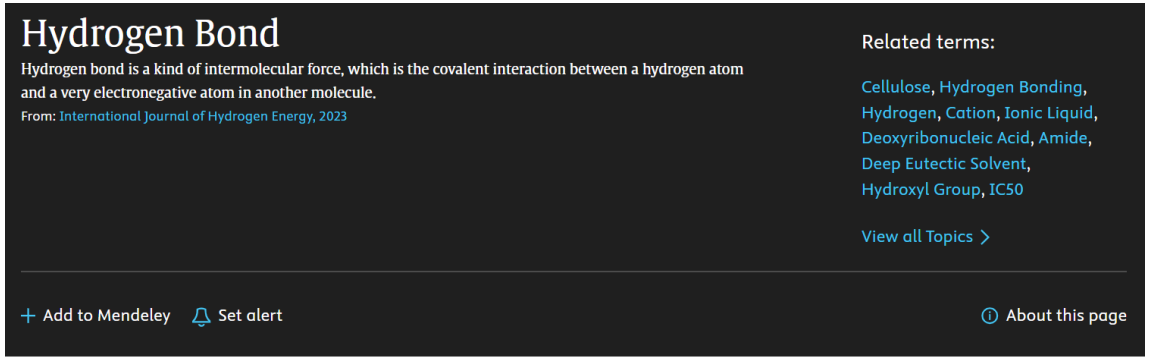
the synthesis of functional polymers first via ROMP and subsequently functionalized using noncovalent interactions. Therefore, it is essential to seek other simple highly efficient synthetic methods to prepare different types of supramolecular metathesis polymers.

In contrast with the traditional route for the fabrication of supramolecular polymers, a new way to prepare supramolecular polymer by polymerization of supramolecular monomer was proposed, which is similar to the macromonomer concept in traditional polymer science [20]. Different noncovalent interactions were used to construct supramolecular monomers with diversified structures, and different ways of covalent polymerization were employed to polymerize the supramolecular monomer. Meijer et al. and Zhang et al. prepared supramolecular graft copolymers and photoresponsive linear supramolecular polymers, respectively, by acyclic diene metathesis (ADMET) polymerization of supramolecular monomers containing a quadruple hydrogen bond motif [21], [22]. In view of the supramolecular monomer concept, a one-pot strategy is developed and simplifies the fabrication of supramolecular polymers. Grubbs et al. utilized ADMET polymerization of a supramolecular monomer comprising a polymerizable ammonium salt and crown ether to synthesize polyrotaxanes by a one-pot process [23]. More recently, we synthesized noncovalently connected amphiphilic supramolecular graft copolymers via a novel and facile approach combining host–guest interactions and ADMET polymerization in one-pot [24]. Although this method has an obvious advantage, supramolecular polymers prepared by the combination of noncovalent interactions with ROMP in one-pot process are scarcely reported in recent studies, which is easily accessible to synthesize various functional supramolecular materials.



Hydrogen Bond

Krzysztof Szalewicz, in
Encyclopedia of Physical Science and Technology (Third Edition), 2003

Palladium-Catalyzed Directed Arylation of Unactivated C(sp3)H Bonds

Bin Liu, ... Bing-Feng Shi, in

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2.1. Materials

Graphene Oxide (GO) was synthesized from graphite powder according to a modified Hummer's method. Other chemicals and reagents were purchased from Beijing Chemicals Factory. Deionized water was used in all experiments.

2.2. Fabrication of the Ni nanochains and the rGO/Ni nanohybrids

Ni nanochains were prepared according to our previous work [28]. In brief, 0.119 g of $NiCl_2 \cdot 6H_2O$ and 0.333 g of polyvinyl pyrrolidone were dissolved in 100 ml of ethylene glycol (EG) solvent with mechanical stirring for 2 h to obtain a transparent solution. Next, 0.265 mL of the hydrazine monohydrate liquid (80%) was added to the as prepared solution dropwise. After stirring for 2 h, the homogeneous suspension was transferred to a heating jacket and heated to the boiling point of EG (~197 °C) with refluxing for 3 h, then a dark precipitate was obtained. Subsequently, the precipitate was washed several times with distilled water and absolute ethanol and finally dried at 60 °C for 12 h for further characterization.

The rGO/Ni nanohybrids were synthesized by a facile synthetic route. First, the graphene oxides with different mass were put in deionized water with ultrasonic treatment for 2 h to obtain a homogeneous dispersion. Then this solution was heated to 90 °C in an oil bath under magnetic stirring, after that, a certain amount of $N_2H_4 \cdot H_2O$ was dissolved in the reaction solution. After stirring for 3 h, the solution was cooled to room temperature and then the as-synthesized Ni chains were added in, with continuing sonicating for another 2 h. Finally, the black mixture was collected by centrifugation and washed several times using the deionized water and then freeze-dried at −50 °C for 48 h to get rGO/Ni hybrids powders. The mass ratio between rGO and Ni were 4:1, 2:1, 1:1, 1:2, and 1:4, respectively.

W. Xu, Y.F. Pan, W. Wei, G.S. Wang, P. Qu
Microwave absorption enhancement and dual-nonlinear magnetic resonance of ultra small nickel with quasi-one-dimensional nanostructure
Appl. Surf. Sci., 428 (2018), pp. 54-60
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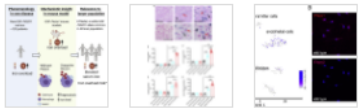

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Cell

Volume 184, Issue 4, 18 February 2021, Pages 969-982.e13

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A role of PIEZO1 in iron metabolism in mice and humans

Shang Ma [1], Adrienne E. Dubin [1], Yunxiao Zhang [1], Seyed Ali Reza Mousavi [1], Yu Wang [1], Adam M. Coombs [1], Meaghan Loud [1], Immacolata Andolfo [2], Ardem Patapoutian [1, 3]

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"Iron"ing out hemophagocytosis through PIEZO1

Cell, Volume 184, Issue 4, 18 February 2021, Pages 856-858

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Highlights

- Expression of gain-of-function PIEZO1 in macrophages induces iron overload in mice

Ardem Patapoutian

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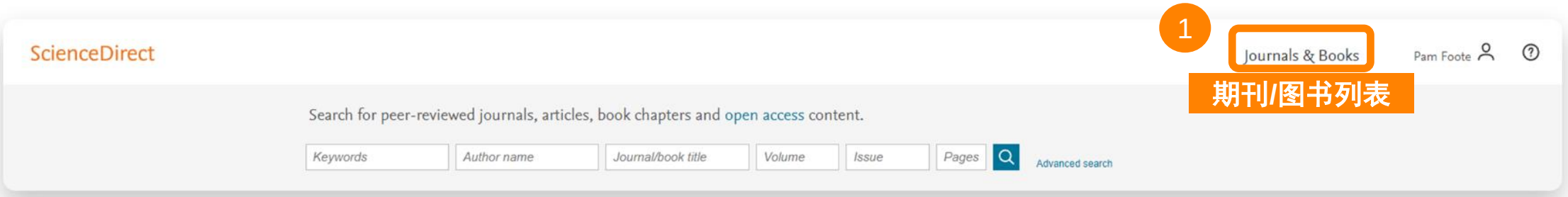

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Austin Lee, Mathew Wynn, ... Navid Zobeiry

Advances in Industrial and Manufacturing Engineering • 2022

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The study highlights that variations in printing parameters significantly affect the crystallinity of semi-crystalline polymers, which in turn influences their mechanical performance. Understanding these variations is crucial for additive manufacturing practices.

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Retrieving back plastic wastes for conversion to value added petrochemicals: opportunities, challenges and outlooks

Manish Kumar, Shiv Bolan, ... Nanthi Bolan

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Additives can enhance the chemical, physical, and mechanical properties of polymers, impacting their performance in additive manufacturing. They also help reduce degradation from environmental factors, which is important for testing polymer properties.

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How can I test the effects of additive manufacturing on the structure, mechanical properties, and crystallinity of polymers?

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Summary answer

Testing the Effects of Additive Manufacturing on Polymers

To test the effects of additive manufacturing on the structure, mechanical properties, and crystallinity of polymers, consider the following steps:

1. **Printing Parameters:

- **Crystallinity Variability:** Adjusting printing parameters can significantly affect the crystallinity within the polymer part, which in turn influences mechanical performance and chemical stability (Lee et al., 2022), (Hart, Dunn & Wetzel, 2020).
- **Thermal Cycles:** The complex thermal cycles during additive manufacturing can alter microstructures, impacting mechanical properties such as tensile strength (Lia et al., 2018).

2. **Mechanical Properties:

- **Internal Defects:** Monitor for internal defects like voids, which can affect mechanical properties and lead to failure in lattice structures under stress (Wei et al., 2024).
- **Print Orientation:** Investigate the effects of print orientation on mechanical properties. For instance, layer orientation can affect tensile fracture behavior and anisotropic mechanical performance (Palma et al., 2019), (Dai et al., 2024).
- **Process Parameters:** Vary process parameters such as infill pattern and density to observe changes in tensile, compression, flexural, or impact strength (Vallejos Baier et al., 2021).

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Answer found in section: "Manufacturing of plastics"

Improvements to the basic chemical, physical and mechanical properties can be done through the incorporation of additives. These also have protective effects, reducing degradation of the polymer from ligh heat, or bacteria [2]. They have an impact on viscosity and melt flow in polymer manufacturing. Moreover, additives give products their colour and other unique qualities including increased surface properties, less friction, and flame retardancy [8].

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ARTICLE	EXPERIMENT / STUDY	GOAL	MATERIALS	METHODS	RESULTS	CONCLUSION
Article Increased fracture toughness of additively manufactured semi-crystalline thermoplastics via thermal annealing ↗ Kevin R. Hart, Ryan M. Dunn, Eric D. Wetzel *Polymer* • Volume 211 • 2020 Export article as CSV	Fracture toughness testing	To evaluate the critical elastic-plastic strain energy release rate (JIc) of the interlaminar region of additively manufactured single edge notched bend (SENB) specimens made from polylactide (PLA) polymer, and to study the effect of post-print thermal annealing and cooling rate on the degree of crystallinity and fracture toughness.	Single edge notched bend (SENB) specimens measuring 100 x 20 x 10 mm, fabricated using fused-filament fabrication (FFF) with 1.75 mm polylactide (PLA) filament, printer nozzle diameter of 0.5 mm, nozzle temperature of 200 °C, bed temperature of 50 °C, 454 layers with [0/90] orientation, 2 perimeter shells, 100% infill density, layer height of 0.22 mm, 12.7 µm thick poly-imide (Kapton) tape as pre-crack notch.	SENB specimens were subjected to post-print thermal annealing at 160 °C for 2 hours, then cooled at various rates (quenched in ice water or cooled at 1 °C/min) to induce different degrees of crystallinity. Fracture testing was performed in three-point bending in displacement control at 0.5 mm/min, with crack propagation monitored using a CCD camera. Fracture surfaces were analyzed using optical and scanning electron microscopy.	As-printed PLA SENB specimens had an interlaminar fracture toughness of 2.73 ± 0.48 kJ/m2. Annealed and quenched specimens (amorphous, 0% crystallinity) had a toughness of 5.62 ± 1.81 kJ/m2. Annealed and slowly-cooled specimens (25% crystallinity) had a toughness of only 0.63 ± 0.017 kJ/m2.	Annealing can increase the interlaminar toughness of additively manufactured PLA, but only if the material is quenched rapidly after annealing to maintain an amorphous state. Slow cooling after annealing results in high crystallinity and low fracture toughness.
	Differential scanning calorimetry (DSC)	To determine the maximum enthalpy of cold crystallization (ΔHcc*) of PLA polymer, which establishes an upper limit on the degree of crystallinity that can be induced using common heating and cooling mechanisms.	PLA filament (1.75 mm diameter) pelletized by manually cutting into 10 mm segments, fed into a twin-screw micro-compounding machine at 200 °C and 50 rpm for 10 minutes to create an amorphous melt, then quenched in an ice water bath.	The quenched amorphous PLA extrudate was dried and then subjected to a heat-cool-heat DSC cycle between 40-200 °C at 5 °C/min to measure the maximum enthalpy of cold crystallization.	The maximum enthalpy of cold crystallization (ΔHcc*) for the fully amorphous PLA polymer was 21.7 J/g.	The maximum enthalpy of cold crystallization establishes an upper limit on the degree of crystallinity that can be induced in the PLA polymer using common heating and cooling mechanisms.

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Retrieving back plastic wastes for conversion to value added petrochemicals: opportunities, challenges and outlooks

Manish Kumar [a], Shiv Bolan [b,c], Lokesh P. Padhye [d], Muxina Konarova [e], Shin Ying Foong [f], Su Shiung Lam [f,g], Stuart Wagland [h], Runzi Cao [i], Yang Li [i], Nuno Batalha [j], Mohamed Ahmed [k], Ashok Pandey [k,l,m], Kadambot H.M. Siddique [b,c], Hailong Wang [i], Jörg Rinklebe [n], Nanthi Bolan [b,c,*]

HIGHLIGHTS

- Petrochemicals are the primary feedstocks for the manufacture of plastics.
- The plastic wastes can be retrieved back to value added petrochemicals.
- Plastic-based petrochemicals include crude oil, gases, hydrogen and aromatic char.
- Plastic conversion technologies include thermochemical, catalytic and chemolysis.
- Environmental impacts and economic of the processes need further evaluation.

ARTICLE INFO

Keywords:
Plastic waste
Petrochemicals
Thermochemical conversion technologies
Techno-economic analysis
Life cycle assessment

ABSTRACT

Plastic production and its unplanned management and disposal, has been shown to pollute terrestrial, aquatic, and atmospheric environments. Petroleum-derived plastics do not decompose and tend to persist in the surrounding environment for longer time. Plastics can be ingested and accumulate into the tissues of both terrestrial and aquatic animals, which can impede their growth and development. Petrochemicals are the primary feedstocks for the manufacture of plastics. The plastic wastes can be retrieved back for conversion to value added petrochemicals including aromatic char, hydrogen, synthesis gas, and bio-crude oil using various technologies including thermochemical, catalytic conversion and chemolysis. This review focuses on technologies, opportunities, challenges and outlooks of retrieving back plastic wastes for conversion to value added petrochemicals.

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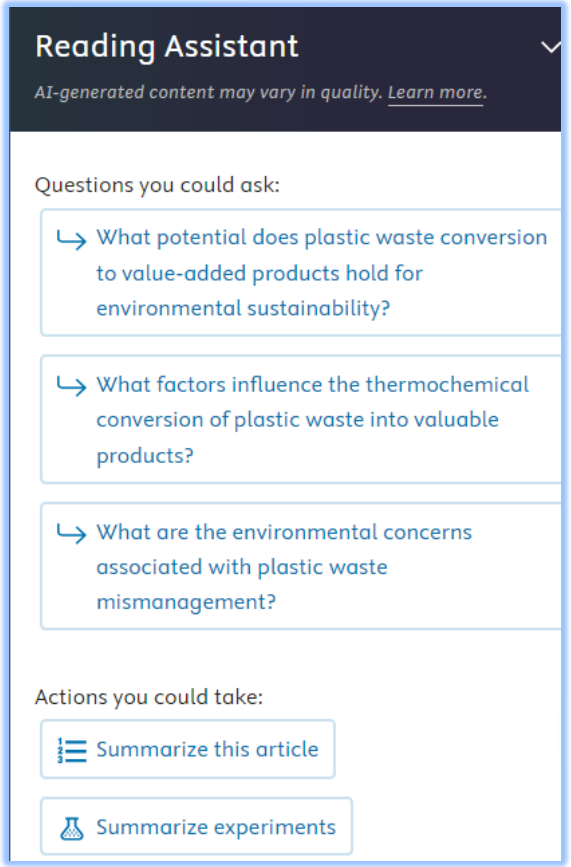

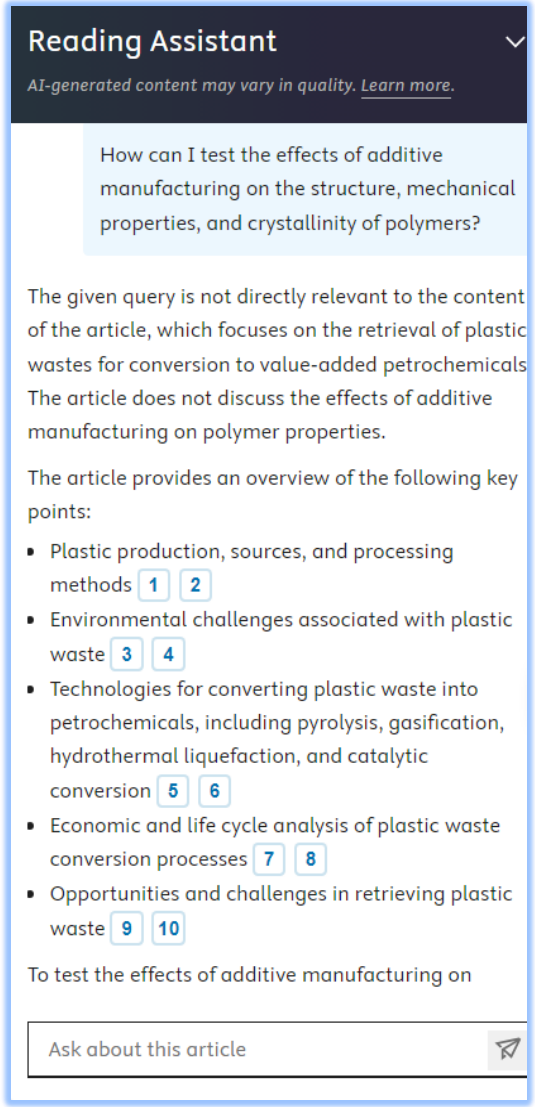

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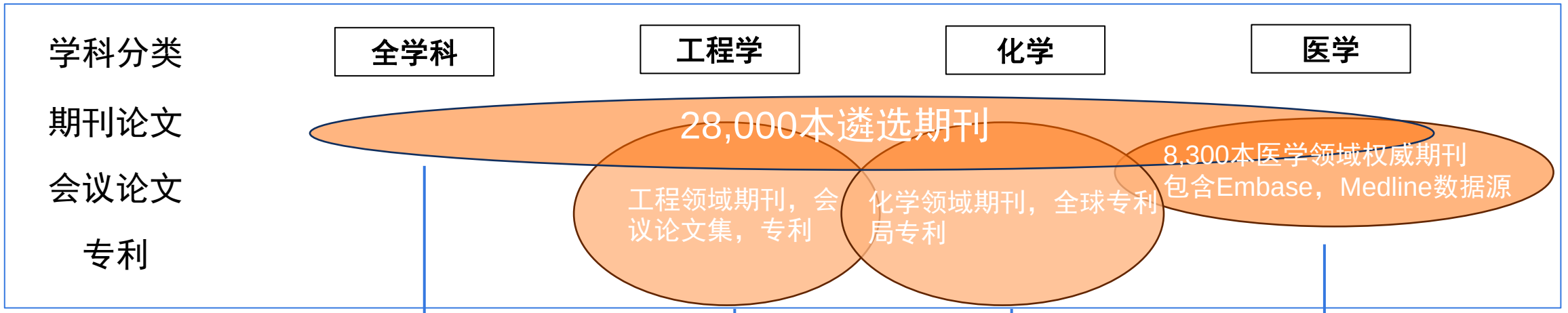

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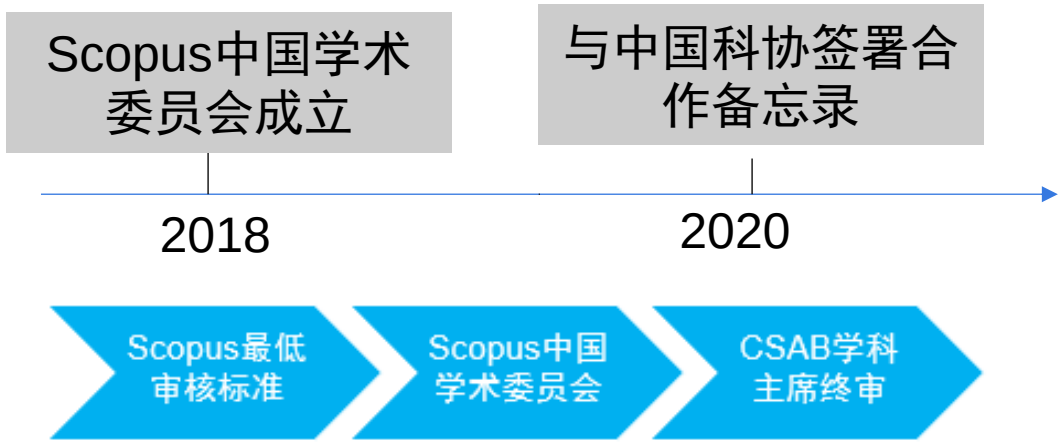

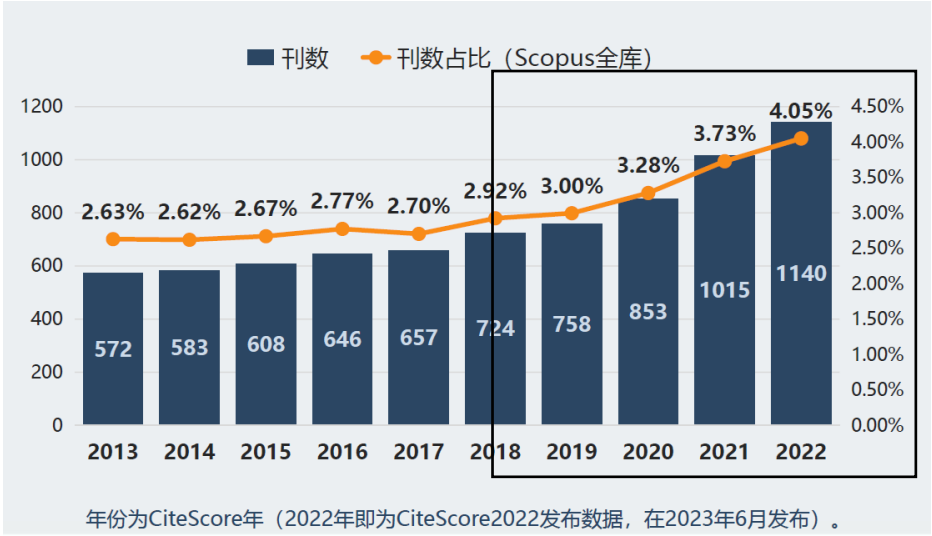

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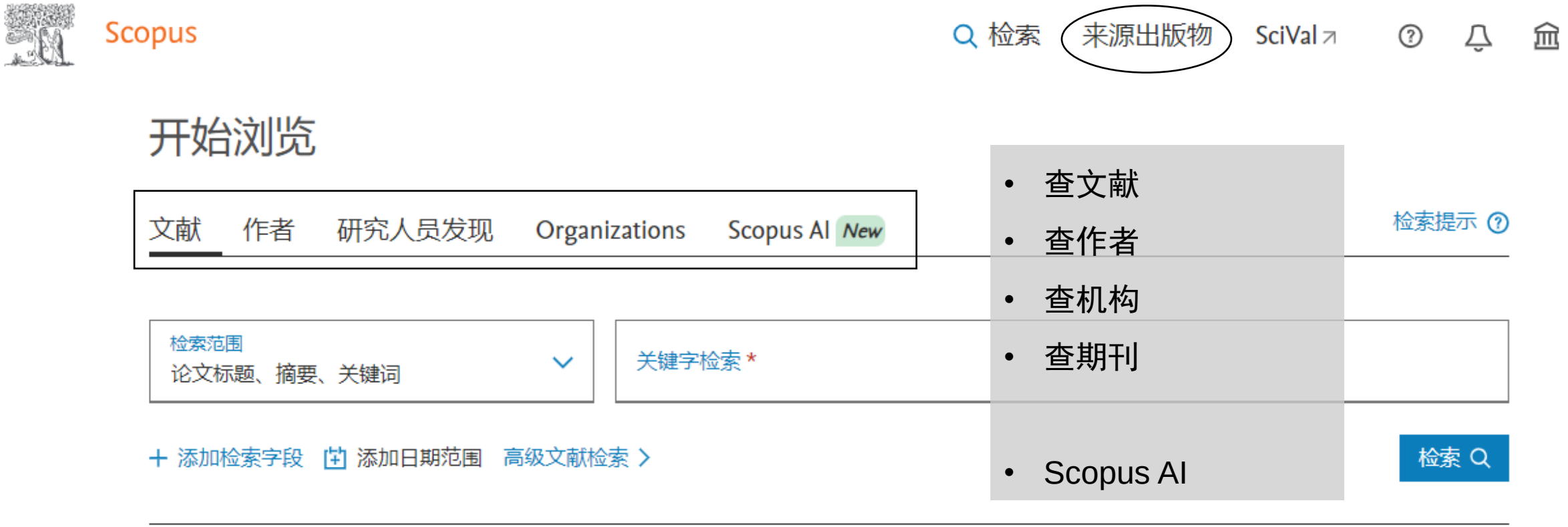

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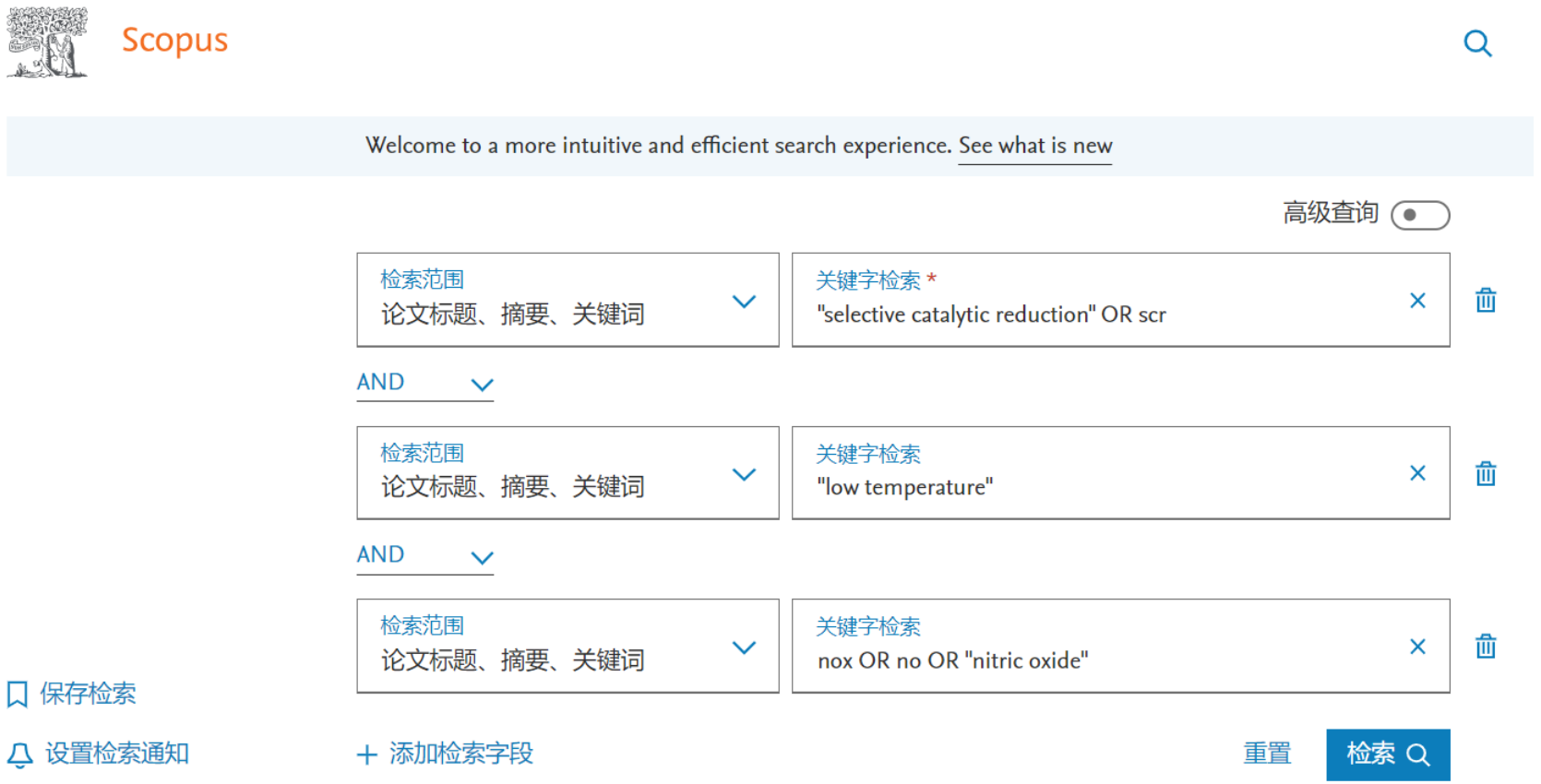

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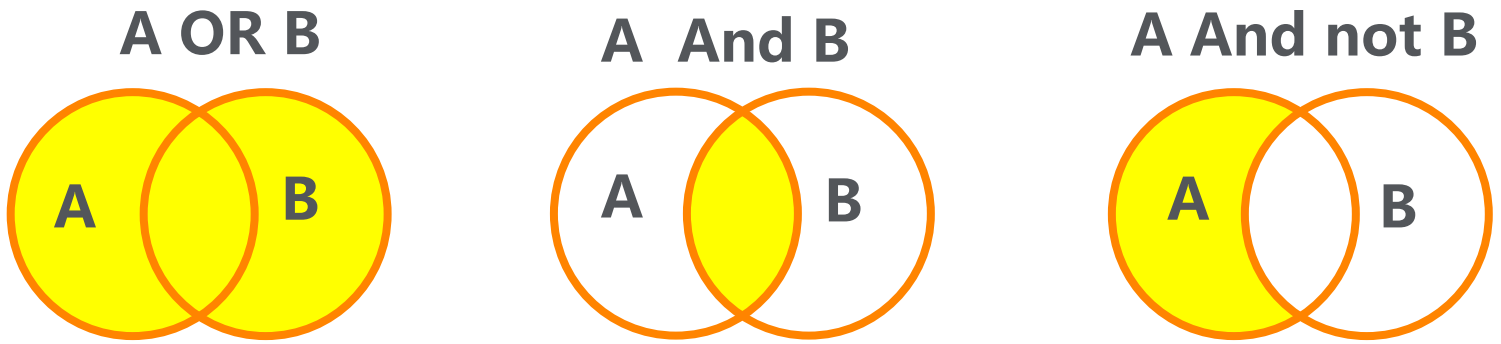

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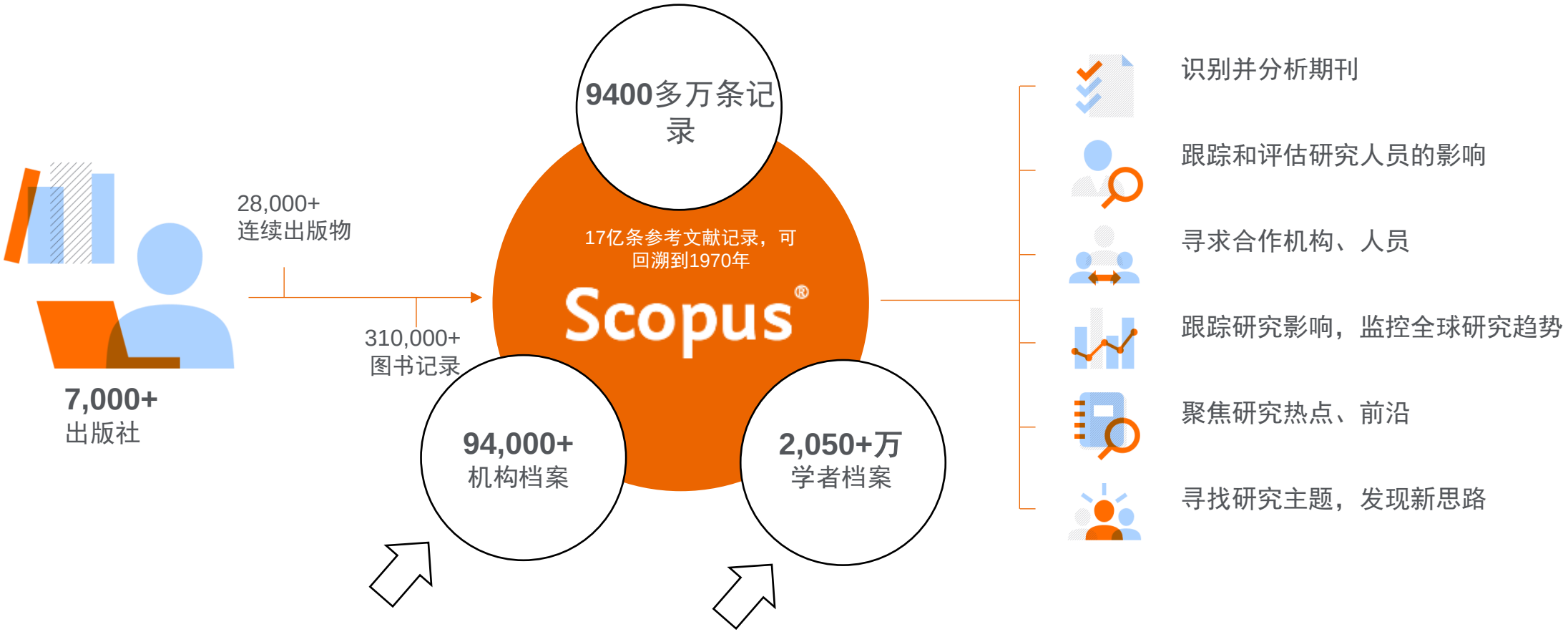

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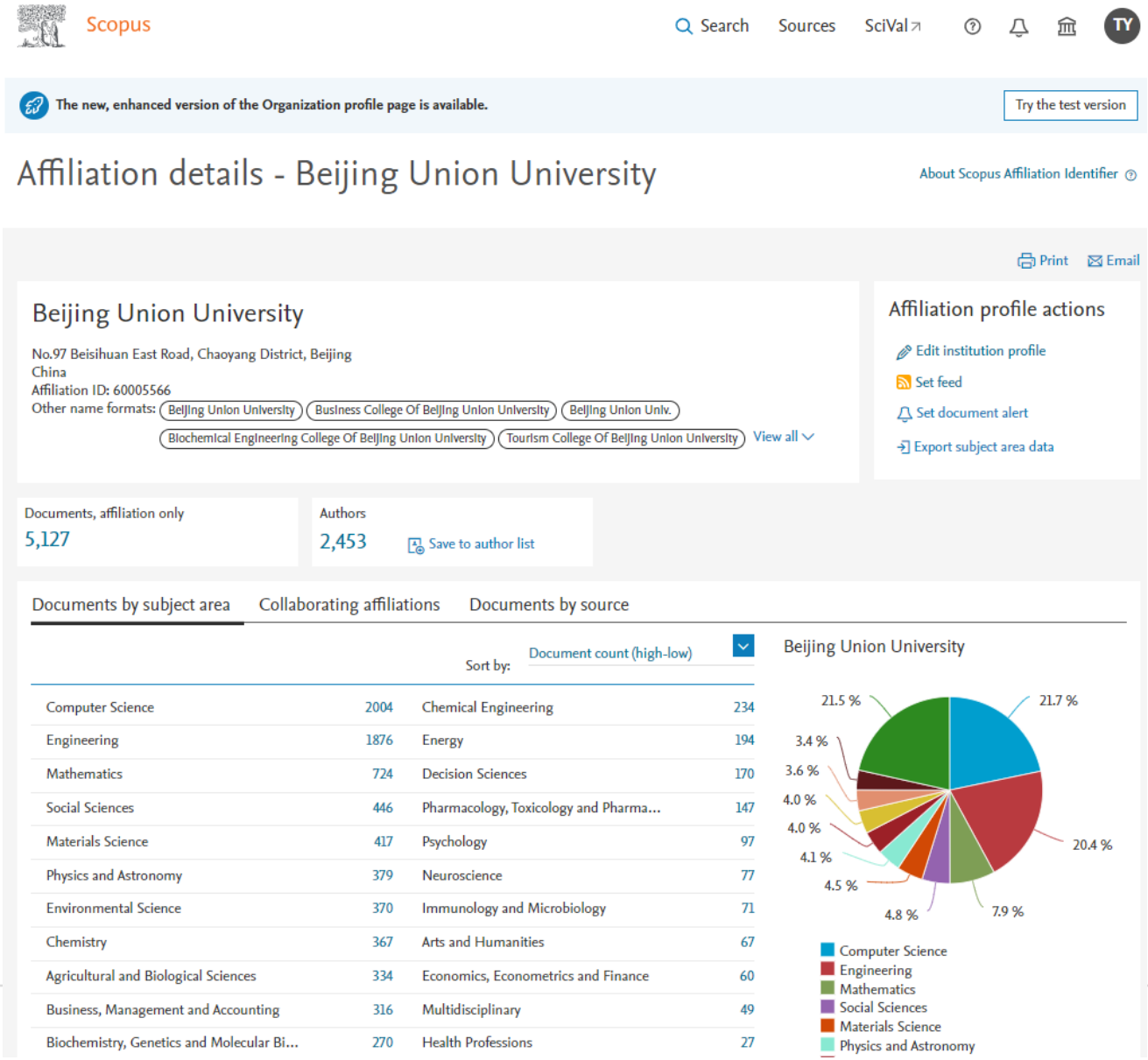

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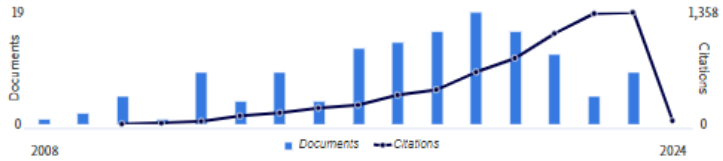

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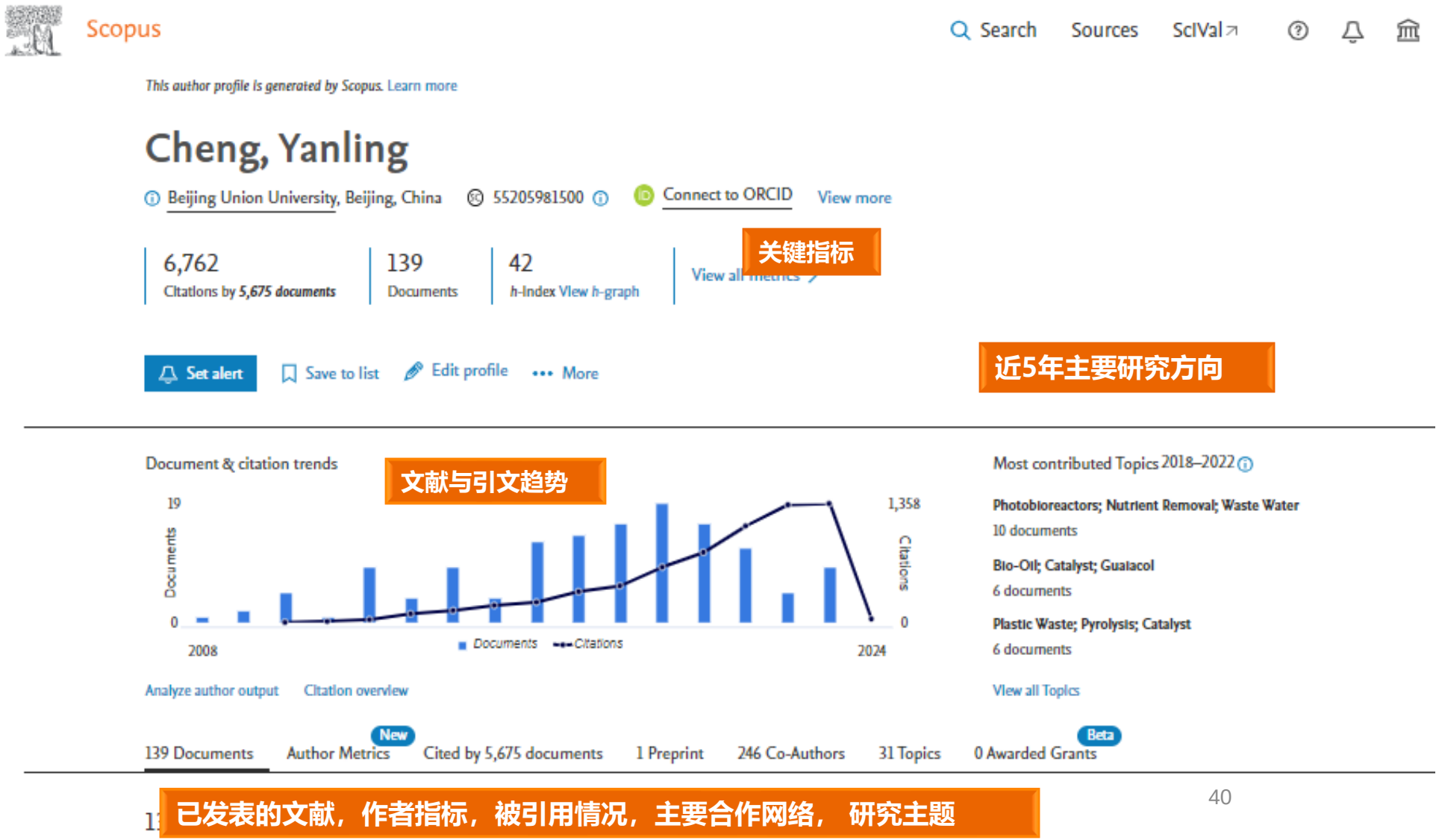

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全球前2%顶尖科学家

深圳高校400余名学者上榜2023“全球前2%顶尖科学家”

人才深圳 2023-10-19 21:06 发表于广东

日前，美国斯坦福大学John P. A. Ioannidis教授团队和爱思唯尔数据库（Elsevier Data Repository）发布了2023全球前2%顶尖科学家榜单。深圳高校有400余名教授和学者入选。

全球前2%顶尖科学家榜单是由斯坦福大学与国际权威学术出版社Elsevier合作的项目成果，榜单基于Scopus数据库的引用数据系统分析，对全球约700万科学家的论文引用数（区分自引和他引，提供自引数据）、H指数、合著者调整的HM因子、单独或第一作者的文章引用数等参数进行综合考量，涵盖文、理、工学科，收录来自22个学科领域、176个子学科领域全球排名前2%的科学家，是世界公认的较为客观、真实反映科学家的产出和学术影响的指标。榜单分为“终身科学影响力排行榜”（1960-2022）和“2022年度科学影响力排行榜”。

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What are the specific mechanisms by which traditional Chinese herbal medicine treats chronic h

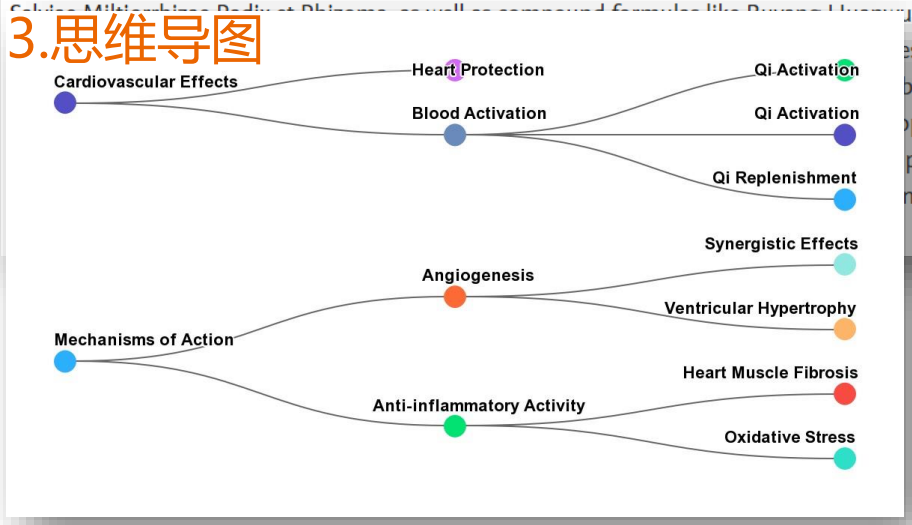
2.科学问题的基本概要

What are the specific mechanisms by which traditional Chinese herbal medicine treats chronic heart failure?

Traditional Chinese herbal medicine treats chronic heart failure through specific mechanisms that target the underlying causes of the condition. Several studies have explored the efficacy and mechanisms of action of Chinese herbs in treating heart failure . 1 2 3 The major causes of heart failure according to traditional Chinese medicine (TCM) are Qi deficiency and blood stagnation . 2 Chinese herbal medicines such as Astragali Radix, Ginseng Radix et Rhizoma, Notoginseng Radix et Rhizoma, and

...tang and Qili ...essing both the ...been shown to ...phy, anti- ...portant to ...nal Chinese

3.思维导图



4.扩展详细总结

Expanded summary

Traditional Chinese herbal medicine has shown potential in t... various mechanisms. Here are the key findings from the rele...

1. **Active compounds:** Chinese medicinal herbs contain diver... found to treat CHF through multiple molecular mechanisms... Astragali Radix, Ginseng Radix et Rhizoma, Notoginseng Rac... Radix et Rhizoma . 2 These herbs, along with compound fo... Qiangxin capsules, play a significant role in the prevention a...

2. **Effects on the cardiovascular system:** Traditional Chinese... cardiovascular system in the treatment of CHF by improving... energy metabolism, and reducing oxidative stress and inflam... cardiac hypertrophy, antifibrotic, anti-inflammatory, antioxid... effects are mediated through multiple signaling pathways, in... and pro-inflammatory cytokines . 5

3. **Anti-inflammatory and antioxidant effects:** Traditional Chi... inflammatory effects in the treatment of CHF. It can suppres... and inhibit inflammation in patients or experimental models... Additionally, it has antioxidant effects that help mitigate oxid... and improve calcium cycling . 2

In conclusion, traditional Chinese herbal medicine treats chr... mechanisms, including the action of active compounds, effe... inflammatory effects, and antioxidant effects. These findings...

5.参考文献和经典文献-追溯信息的文献来源

Summary references

Reference 1 • **69 citations**

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Wang, Y., Wang, Q., Li, C., (...), Wang, W.

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International Journal of Hydrogen Energy 2001

Biohydrogen production: Prospects and limitations to practical application — 1,331 citations

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Metal hydride materials for solid hydrogen storage: A review — 2,851 citations

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International Journal of Hydrogen Energy 2007

6.扩展问题-值得关注的细分方向，启发思路

- What are the specific herbal compounds in traditional Chinese medicine that have shown potential in treating chronic heart failure?
- How does traditional Chinese herbal medicine affect the cardiovascular system to improve symptoms of chronic heart failure?
- Are there any clinical studies or trials that have investigated the efficacy of traditional Chinese herbal medicine in the treatment of chronic heart failure?

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