



The Nature Research solution for nanotechnology

- Centralized nanotech-related articles in one space
- Insights into the content that is closely related to the search input
- Curated nanomaterial summaries from top journals worldwide

A nanomaterial summary includes



Nanostructure Type



Size



Composition



Properties



Applications



Preparation



Characterization



Toxicity



Patent Claims

User benefits from nano.nature.com

Find nanotechnology information precisely without looking into the full text

Information on similar nanomaterials is compiled into summaries from multiple sources



Preparation steps for nanomaterials can be easily found and visualized

Nanomaterials with specific properties and application can be quickly enlisted

Smart Search

Nano combines the key features of a database and an Abstract & Indexing discovery tool supported by nano-specific functionality.

The screenshot displays the Nano search interface with various filters and search results. On the left, there are filter panels for Nanostructure, Size, Property, and Application. The Nanostructure panel lists categories like Nanostructured materials (78,508), Nanoparticles (63,319), Nanofilms (16,674), Nanoporous materials (10,521), and Nanowires (9,800). The Size panel has a range from 0 to 50,000 nm. The Property panel includes Current density (11,851), Catalytic activity (11,476), Cyclic voltammogram (10,063), Open-circuit voltage (8,904), and Fill factor (8,385). The Application panel shows Power generation (18,889). The Publisher panel lists Elsevier (146,299), RSC Publishing (109,430), Springer (93,209), ACS Publications (38,187), and NPG (33,230). The Journal panel lists RSC Advances (31,309), PLOS ONE (23,741), Journal of Alloys and Compounds (19,221), Applied Surface Science (17,006), and Scientific Reports (16,169). The Publication Year panel shows counts for years from 2015 to 2012. The search results panel on the right shows a search for 'multilayer' with an 'Auto Suggest' dropdown listing related terms like 'multilayer graphene', 'multilayered graphene', 'multilayer graphene sheets', 'multilayered mos2', 'multilayer mos2 flakes', 'multilayer molybdenum sulfide', 'multilayered mos2 flakes', 'multilayer graphene film', and 'multilayer ceramic capacitors'. The results list includes a paper by Linjie Zhou et al. in Chinese Science Bulletin (2014) about a microdisk resonator integrated with p-n junctions. The 'Refined Results' section shows filters for Composition (gold, dielectric material, gold), Nanostructure (nanoparticles), Diameter (0 - 30 nm), and Other information (Characterization (2), Application (2), Property (1)).

Nanostructure

- ☐ Nanostructured materials 78,508
- ☐ Nanoparticles 63,319
- ☐ Nanofilms 16,674
- ☐ Nanoporous materials 10,521
- ☐ Nanowires 9,800
- [See all \(32\)](#)

Size

0 - 50000 nm

Property

Search

- ☐ Current density 11,851
- ☐ Catalytic activity 11,476
- ☐ Cyclic voltammogram 10,063
- ☐ Open-circuit voltage 8,904
- ☐ Fill factor 8,385
- [See the top 100](#)

Application

- ☐ Power generation 18,889

Publisher

- ☐ Elsevier 146,299
- ☐ RSC Publishing 109,430
- ☐ Springer 93,209
- ☐ ACS Publications 38,187
- ☐ NPG 33,230
- [See all \(24\)](#)

Journal

- ☐ RSC Advances 31,309
- ☐ PLOS ONE 23,741
- ☐ Journal of Alloys and Compounds 19,221
- ☐ Applied Surface Science 17,006
- ☐ Scientific Reports 16,169
- [See the top 100](#)

Publication Year

- ☐ 2015 85,365
- ☐ 2016 81,855
- ☐ 2014 74,058
- ☐ 2013 61,762
- ☐ 2012 52,404
- [See all \(9\)](#)

Auto Suggest

- multilayer
- multilayer graphene
- multilayered graphene
- multilayer graphene sheets
- multilayered mos2
- multilayer mos2 flakes
- multilayer molybdenum sulfide
- multilayered mos2 flakes
- multilayer graphene film
- multilayer ceramic capacitors

Refined Results

Composition: gold | dielectric material | gold | [More >](#)

Nanostructure: nanoparticles | Diameter: 0 - 30 nm

Based on 1 article (2013)

Other information: Characterization (2) | Application (2) | Property (1)

Gain insight into the content that is closely related to the search input. Insights from the same article could be different based on the search inputs.

The screenshot shows the Nano search interface with two search filters: 'zno nanoparticles' and 'mgo nanoparticles'. The search results for 'O2 adsorption dependent photoluminescence emission from metal oxide nanoparticles' are displayed. The article is by Amir R. Gheisi, Chris Neygandhi, and Andreas K. Sternig, published in Physical Chemistry Chemical Physics (2014). The abstract states: 'Optical properties of metal oxide nanoparticles are subject to synthesis related defects and impurities. Using photoluminescence spectroscopy and UV diffuse reflectance in conjunction with Auger electron... more'. A highlighted box contains the text: 'This article discusses: ZnO Nanoparticles with Oxygen, Annealing, Synthesis, Photoluminescence, Surface and MgO Nanoparticles with Annealing, Surface, Photoluminescence, Oxygen, Adsorption'. The article has 6 citations.

zno nanoparticles **mgo nanoparticles**

O2 adsorption dependent photoluminescence emission from metal oxide nanoparticles

Amir R. Gheisi | Chris Neygandhi | Andreas K. Sternig ... in **Physical Chemistry Chemical Physics** (2014)

Optical properties of metal oxide nanoparticles are subject to synthesis related defects and impurities. Using photoluminescence spectroscopy and UV diffuse reflectance in conjunction with Auger electron... more

This article discusses: ZnO Nanoparticles with Oxygen, Annealing, Synthesis, Photoluminescence, Surface and MgO Nanoparticles with Annealing, Surface, Photoluminescence, Oxygen, Adsorption

Citations: 6

The screenshot shows the Nano search interface with two search filters: 'metal oxide nanoparticles' and 'adsorption'. The search results for 'O2 adsorption dependent photoluminescence emission from metal oxide nanoparticles' are displayed. The article is by Amir R. Gheisi, Chris Neygandhi, and Andreas K. Sternig, published in Physical Chemistry Chemical Physics (2014). The abstract states: 'Optical properties of metal oxide nanoparticles are subject to synthesis related defects and impurities. Using photoluminescence spectroscopy and UV diffuse reflectance in conjunction with Auger electron... more'. A highlighted box contains the text: 'This article discusses: Metal Oxide Nanoparticles with Photoluminescence, Property, Annealing, Surface, Composition and Adsorption with Surface, Photoluminescence, Nanoparticles, Oxygen, Defect'. The article has 6 citations.

metal oxide nanoparticles **adsorption**

O2 adsorption dependent photoluminescence emission from metal oxide nanoparticles

Amir R. Gheisi | Chris Neygandhi | Andreas K. Sternig ... in **Physical Chemistry Chemical Physics** (2014)

Optical properties of metal oxide nanoparticles are subject to synthesis related defects and impurities. Using photoluminescence spectroscopy and UV diffuse reflectance in conjunction with Auger electron... more

This article discusses: Metal Oxide Nanoparticles with Photoluminescence, Property, Annealing, Surface, Composition and Adsorption with Surface, Photoluminescence, Nanoparticles, Oxygen, Defect

Citations: 6

Manually curated summaries of nanomaterials — continuously updated by nanotechnology experts

Data referring to similar nanomaterials is compiled from high-impact journals and patents into well structured, comprehensive summaries. For example, gold nanoparticles:

gold nanoparticles

Composition: gold

Nanostructure: nanoparticles | Diameter: 0 - 30 nm

Based on 1668 articles and 23 patents (most recent: 2017)

Other information: Characterization (1588) | Preparation (1094) | Property (684) | Toxicity (401) | Application (365)



Properties

Property	Value	Source
electrical conductivity	~ 0.012 S/cm [~ 1.2 S/m]	Glen DeLoid et al. 2014
electrical resistance	1,470 Ω	Yilmaz, Cihan et al. 2014
electrical resistance	11.9 Ω	Yilmaz, Cihan et al. 2014
electrical resistivity	0.000006 $\Omega \cdot m$	Yilmaz, Cihan et al. 2014

Characterization methods



Method	Dependent on	Source
Raman spectroscopy	–	Zhao, Min et al. 2015 Marioara Avram et al. 2012 S. L. Smitha et al. 2012
UV-Vis-NIR optical spectroscopy	doping charge density	A. Manjavacas and F.J. García de Abajo 2014
UV-Vis-NIR optical spectroscopy	media aging time	A. Stojilković et al. 2016



Toxicity and biological effects

Test outcome	Biological system	Source
acceleration of cell migration	Rat Glioma 2 cell	Rahman, Wan et al. 2011
acceleration of cell migration	bovine aortic endothelial cell	Rahman, Wan et al. 2011
accumulate at the plasma membrane	HeLa cells	Li Shang et al. 2014
accumulation in gut	Daphnia magna	Kyle D. Gilroy et al. 2014

Preparation



Applications

Application	Area	Source
bisphenol A detection	sensors (excluding biosensors)	Mei, Zhanlong et al. 2013
blood clotting	medicine/veterinary	Hee Kyeong Kim et al. 2013
cancer cell detection	diagnostics	Xiangyan Zhou et al. 2014

Patent claims



Patent	Claims
PCT patent WO/2014/045055, 27 Mar 2014	The nanomaterial is claimed together with its method of preparation A specific method of preparation is claimed for the described nanomaterial
PCT patent WO/2014/039821, 13 Mar 2014	A specific method of preparation is claimed for the described nanomaterial
U.S. patent US20120244322, 27 Sep 2012	The nanomaterial is claimed

Please note: selected key data is displayed to fit the page width.

Full data can be found at <https://nano.nature.com/nano/GR-M21079>.

What our Nano advisory board members say?



Nano is an emerging and very powerful research tool. It allows researchers to obtain and compare the characteristics of the full spectrum of nanomaterials, as well as the composition and preparation methods for nano-enabled devices. It will provide nano-scientists with the clarity and deep understanding that the Mendeleev table once provided to chemists. - **Dr. Jens Kroeger, Chief Technology Officer, Raymor and NanoIntegris**

Nanotechnology research and development has been rising on a sharp slope across virtually all scientific disciplines and industries. The result has been a rapidly growing body of information in disparate places that is not readily and efficiently accessible. Researchers need a multidisciplinary database that brings this vast body of data together in an organized and usable way in one place. Working together with other scientists to develop a research solution that can meet this need, through Nano's External Advisory Board, has made me confident that this is a product that can deliver huge value to the research community. - **Dr. Omid Farokhzad, Associate Professor, Harvard Medical School**



Key Benefits

- **Unique** research solution specific to nanotechnology
- **Manually created nanomaterial summaries** from top peer-reviewed journals — evaluated by nanotechnology experts
- **Links to the original data source**
- **Gain quick insight** into the content that is closely related to the search input
- **Up-to-date content** thanks to regular additions
- **Efficient search results** due to precise search tools and filter options

Availability and Access

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