MOF HETEROLITES: MESOSCOPIC HETEROGENEITY WITHIN ORDER WITH POROUS NANOCRYSTALS

Tech ID: 23460 / UC Case 2014-012-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,494,386	12/03/2019	2014-012

BRIEF DESCRIPTION

The invention pertains to Esoscopic Materials comprised of ordered superlattices of microporous metal-organic frameworks (MOFs). These MOF heterolites are engineered to form highly ordered superlattices, enhancing their structural and functional properties. The invention includes methods for manufacturing these MOF heterolites and explores their use in various advanced applications.

SUGGESTED USES

- Gas Separation and Storage: The ordered superlattices of MOFs provide high surface area and selective adsorption properties, making them ideal for efficient gas separation and storage.
- Catalysis: The unique structure of MOF heterolites can be tailored to enhance catalytic activity, offering improved performance in chemical reactions.
- Light Harvesting: These materials can be used in photovoltaic devices and other light-harvesting applications due to their ability to organize light-absorbing molecules in a precise manner.
- Meta-materials: The ordered superlattices can be utilized to create meta-materials with unique optical, electromagnetic, and mechanical properties.

ADVANTAGES

- Enhanced Structural Integrity: The ordered superlattice structure provides superior mechanical stability and durability.
- High Surface Area: The microporous nature of MOFs ensures a large surface area, beneficial for adsorption and catalytic processes.
- Tailored Functionality: The ability to engineer the superlattice structure allows for customization of material properties to suit specific applications.
- Versatility: Applicable in a wide range of fields, from environmental technology to advanced manufacturing.
- Efficient Manufacturing: The methods for producing MOF heterolites are compatible with large-scale production, making them cost-effective.

RELATED MATERIALS

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OTHER INFORMATION

CATEGORIZED AS

» **Energy**

» Other

» **Materials & Chemicals**

» Chemicals

RELATED CASES

2014-012-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Coordinative Alignment Of Molecules In Chiral Metal Organic Frameworks
- Exceptional Zeolitic Imidazolate Frameworks And A General Strategy To Make More
- Hydroxamate-Based Metal-Organic Frameworks
- PFAS Removal from Water Through Fluorinated Cationic Reticular Materials
- Sorption-Based Atmospheric Water Harvesting Device
- Molecular Weaving Additives To Enhance The Mechanical Properties Of Materials
- Hydrochromic Reticular Materials
- Thiazole-Based Covalent Organic Frameworks For Low-Humidity Water Adsorption

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