基于芳香四羧酸构筑的两种配位聚合物的荧光及磁性质（英文

汇报人：

2024-01-25

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introduction

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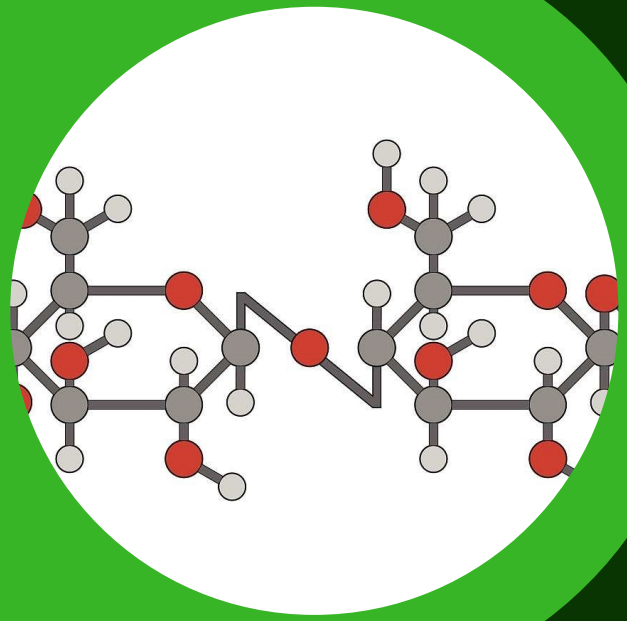
Research background and significance

Aromatic tetracarboxylic acids, as important ligands for constructing coordination polymers, have rich coordination modes and good luminescent properties, thus having potential application value in fields such as fluorescent materials and magnetic materials.

By studying the fluorescence and magnetic properties of coordination polymers based on aromatic tetracarboxylic acids, we can gain a deeper understanding of the relationship between their structure and properties, providing theoretical guidance for the design and synthesis of fluorescent and magnetic materials with excellent performance.

Research Status and Development Trends at Home and Abroad



- Research status at home and abroad: Currently, coordination polymers based on aromatic tetracarboxylic acids have made certain research progress in the fields of fluorescence and magnetism. For example, certain aromatic tetracarboxylic acid ligands can form complexes with rare earth ions with high fluorescence quantum yields, while others can form complexes with transition metal ions with excellent magnetic properties.

Research Status and Development Trends at Home and Abroad

Development trend: In the future, research on coordination polymers based on aromatic tetracarboxylic acids will pay more attention to the following aspects

Design and synthesize aromatic tetracarboxylic acid ligands with novel structures and excellent properties;

Thoroughly study the relationship between the fluorescence and magnetic properties of coordination polymers and their structure;

Explore the applications of fluorescence and magnetic materials in fields such as biological imaging, optoelectronic devices, and magnetic memory devices.

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Experimental section

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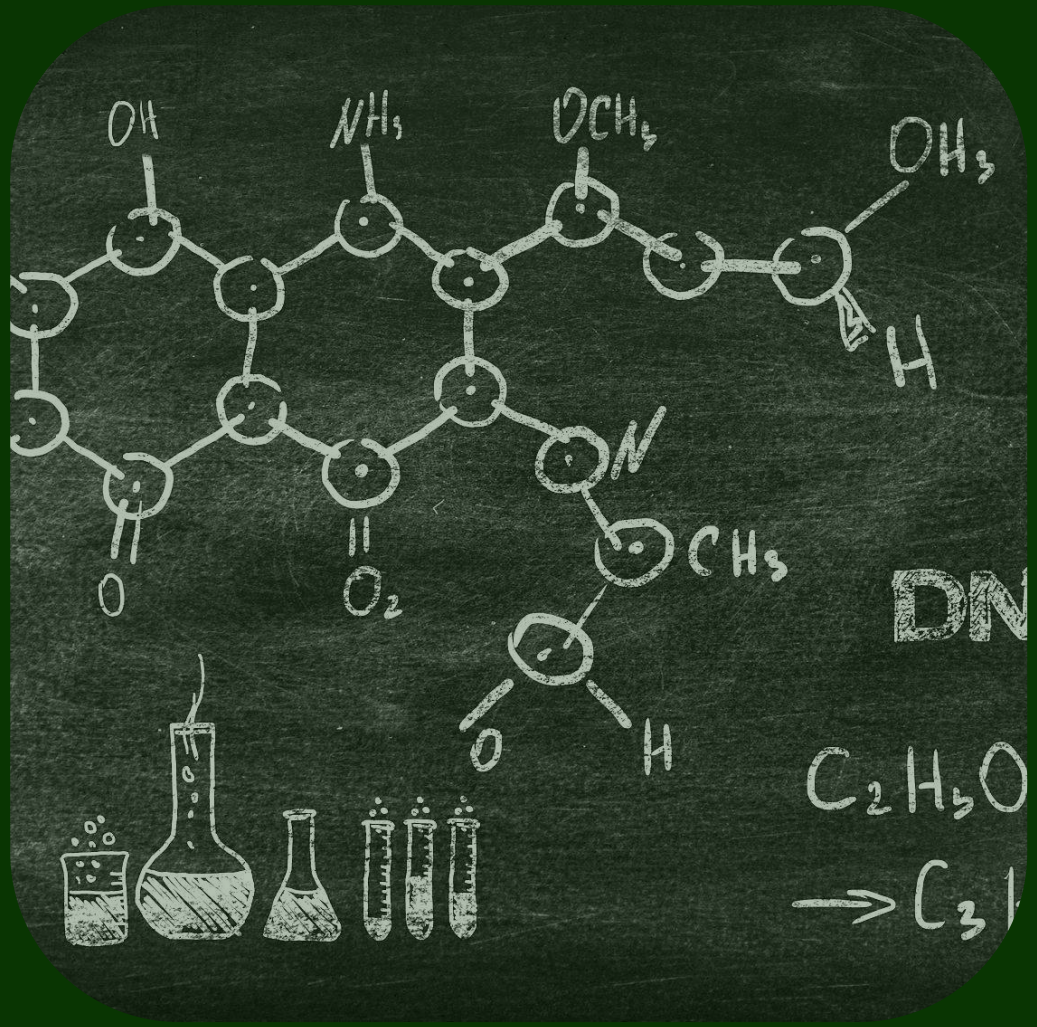
Experimental materials and instruments



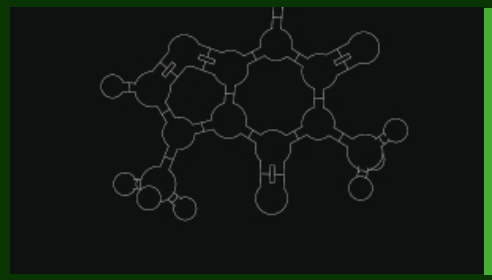
Raw materials

aromatic tetracarboxylic acids, metal salts, organic solvents, etc.

Instruments

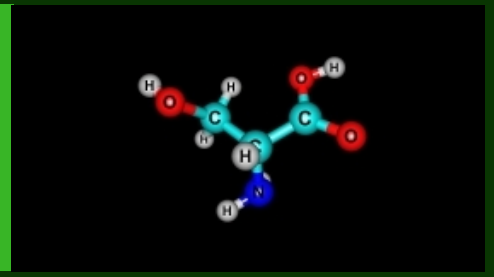
Fluorescence spectrophotometer, magnetometer, X-ray diffractometer, thermogravimetric analyzer, etc.

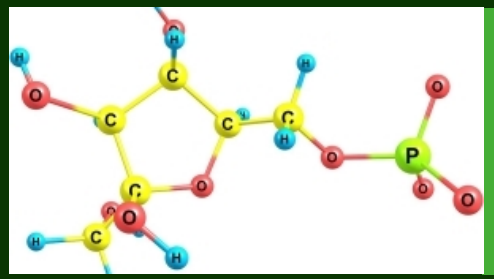
Experimental methods and steps



1. Synthesis of Coordination Polymers

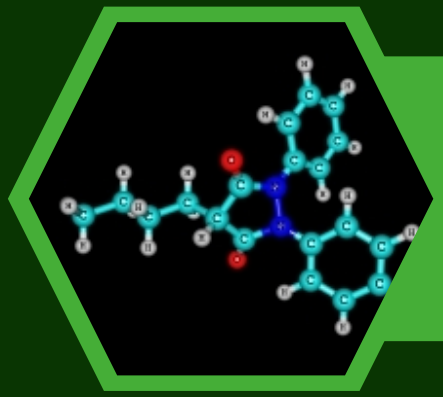
Mix aromatic tetracarboxylic acids with metal salts in a certain proportion and add an appropriate amount of organic solvent.





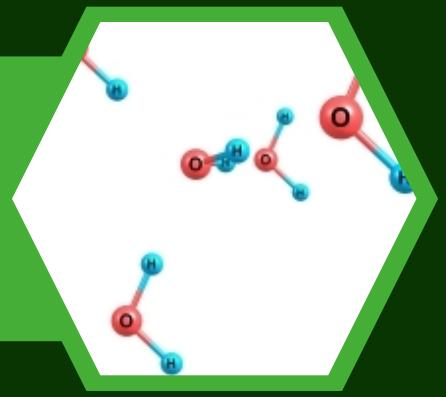
React for a period of time at a certain temperature and stirring speed to obtain coordinated polymers.

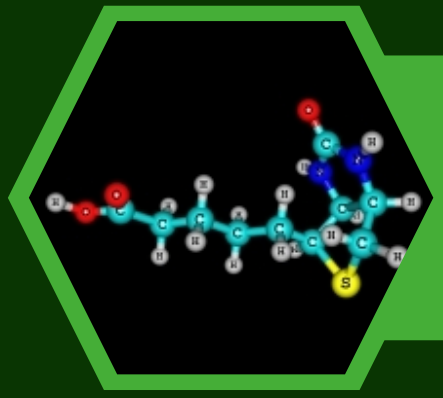
Experimental methods and steps



2. Fluorescence property testing

Dissolve the synthesized coordination polymer in an appropriate solvent to prepare a solution of a certain concentration.

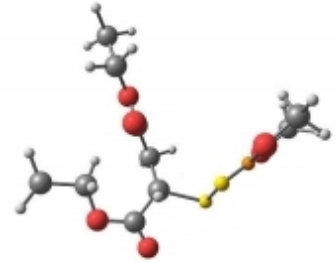


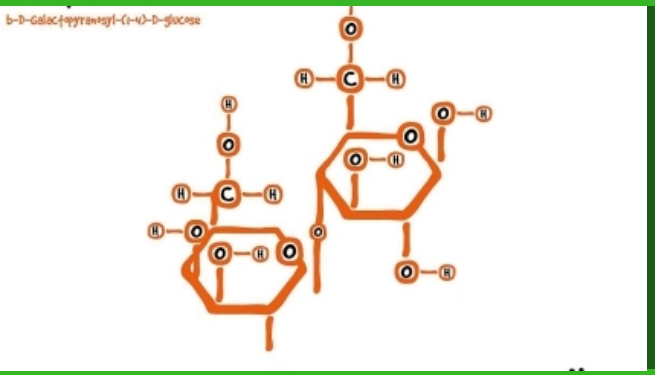


Use a fluorescence spectrophotometer to test the fluorescence spectrum of the solution, record the excitation wavelength and emission wavelength.

Experimental methods and steps

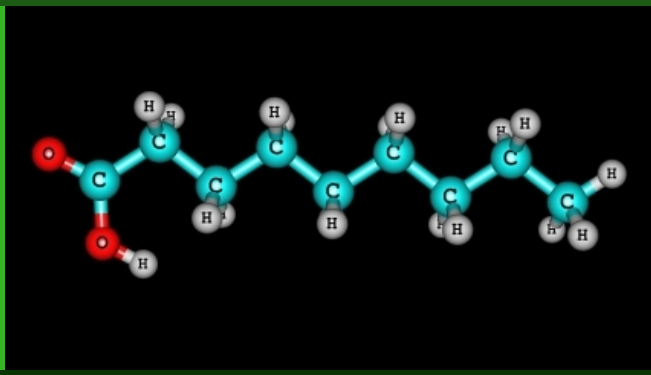
3. Magnetic testing





Grind the synthesized coordination polymer into powder and dry it at a certain temperature.

Use a magnetometer to test the hysteresis loop and magnetization curve of the powder, and record parameters such as saturation magnetization and coercivity.

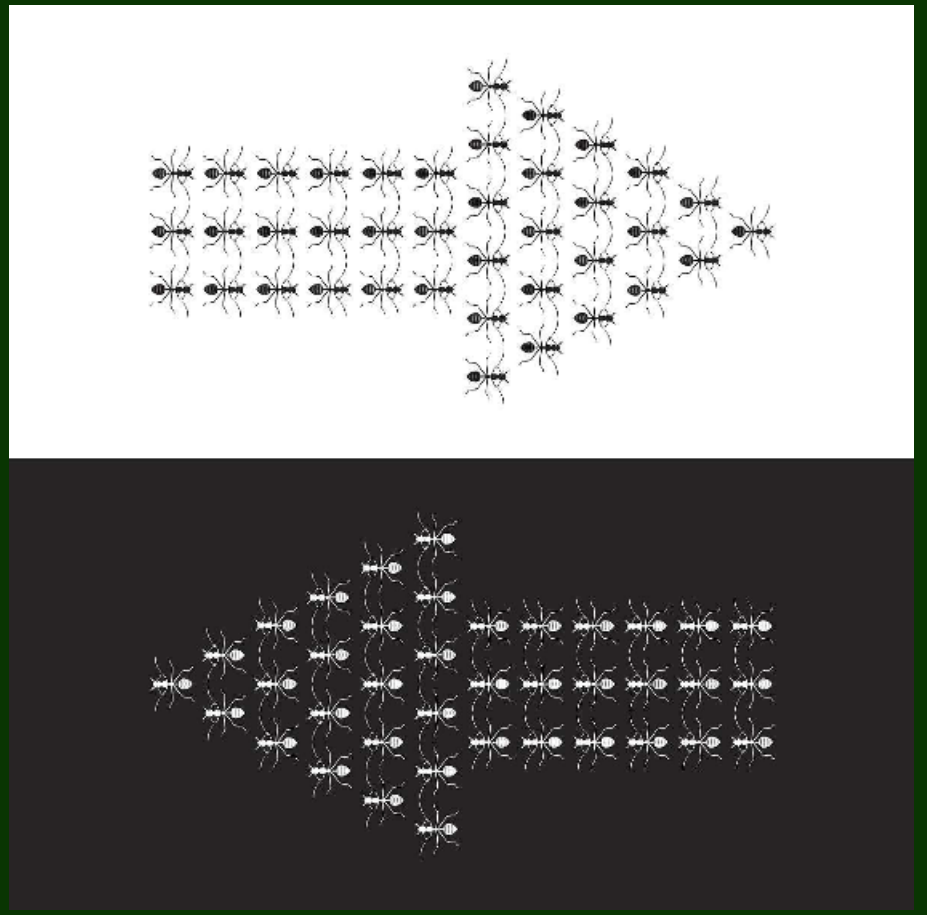


Data analysis and processing methods

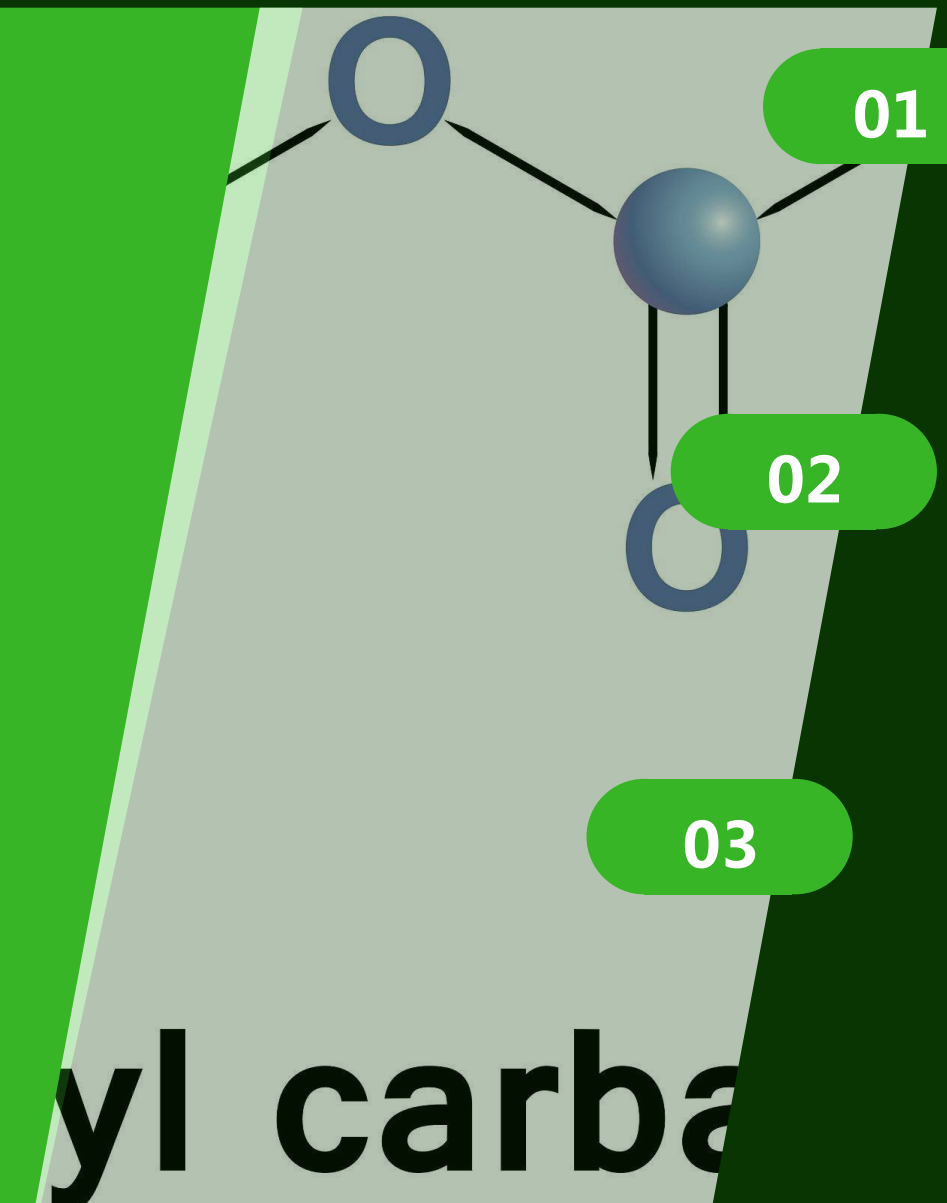
1. Fluorescence data analysis

Calculate parameters such as fluorescence quantum yield and fluorescence lifetime based on fluorescence spectrum data.

Analyze the relationship between fluorescence properties and coordination polymer structure, and explore the mechanism of fluorescence generation.



Data analysis and processing methods



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2. Magnetic data analysis

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Calculate parameters such as saturation magnetization, coercivity, and residual magnetism based on hysteresis loop and magnetization curve data.

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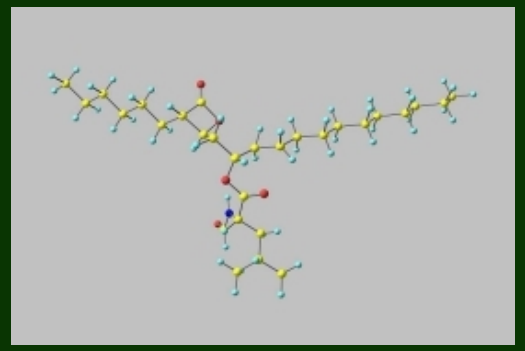
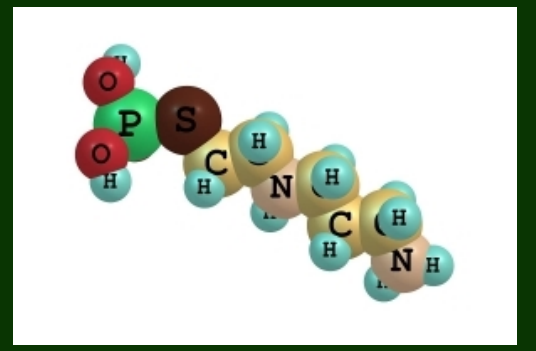
Analyze the relationship between magnetic properties and coordination polymer structure, and explore the mechanism of magnetic generation.

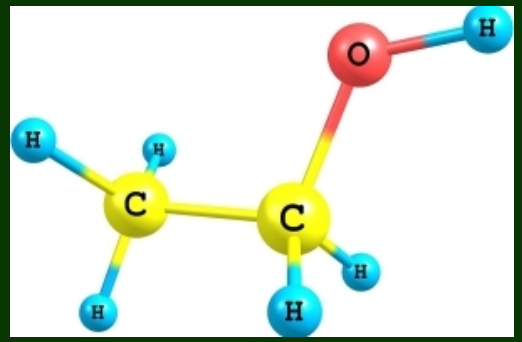
Data analysis and processing methods



Use an X-ray diffractometer to characterize the structure of the synthesized coordination polymer and determine its crystal structure and spatial configuration.



3. Structural characterization and property correlation analysis



Combining fluorescence and magnetic property data, analyze the relationship between structure and properties, and explore the influence of structure on properties.

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Synthesis and characterization of coordination polymers constructed from aromatic

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