MULTIFUNCTIONAL SAMPLE HOLDER FOR SCANNING TUNNELING MICROSCOPES (STM)

DATOS DE CONTACTO:

Research Results Transfer Office-OTRI
University of Alicante
Tel.: +34 96 590 99 59
Email: areaempresas@ua.es
http://innoua.ua.es

RESUMEN

Researchers from the University of Alicante have developed an innovative sample holder designed for use with scanning tunneling microscopes (STM). Thanks to a rail system, the sample holder allows for a quick sample exchange without the need to disassemble the equipment or recalibrate its critical components. Additionally, it enables seamless switching between different techniques.

Its versatile design accommodates various sample sizes and types, including electrochemical samples, ensuring mechanical stability and atomic precision. Furthermore, this sample holder allows for scanning a larger surface area.

This technology is ideal for laboratories that frequently use this type of microscope.

VENTAJAS Y ASPECTOS INNOVADORES

MAIN ADVANTAGES OF THE TECHNOLOGY

The key advantages of this technology include:

- **Fast Sample Exchange**: The rail system enables sample insertion and removal in seconds, significantly reducing the time required for sample changes.
- **Ease of Use**: Simplifies sample handling and assembly, eliminating the need for disassembly and reassembly of the microscope, and removing the requirement for specialized technicians to recalibrate the system afterward.
- **Preservation of Microscope Calibration**: The design maintains the system's spring position, eliminating the need for recalibration after each sample change.
- **High Image Resolution**: The system enables atomic-resolution imaging, as samples remain clean and free from electronic or mechanical interference.
- **Vibration Reduction**: The device's design, particularly the pressing frame and rails, minimizes vibrations, improving image quality.
- **Mechanical and Electrical Stability**: The system allows for high-resolution imaging of metallic surfaces and electrochemically prepared samples, even in ambient conditions.
- **Larger Surface Scanning**: The manual rotation option expands the system's capabilities, allowing for the scanning of larger sample areas.

In summary, this technology optimizes performance, reduces operational complexity, and enhances the user experience in scanning tunneling microscopy.

INNOVATIVE ASPECTS

The most notable innovation of this technology is the ability to insert and remove the sample holder in seconds, thanks to the rail system, eliminating the need to disassemble the microscope or manipulate critical components.

The proposed design enables easy handling and maintains the microscope's calibration between samples. This ensures stability, high image resolution, and minimal vibrations.

Overall, the usability and functionality of scanning tunneling microscopes (STM) are improved, making the technology more accessible, versatile, and efficient.

APLICACIONES DE LA OFERTA

This technology is designed to optimize the use of **scanning tunneling microscopes (STM)**, making it valuable for companies and research centers that utilize these analytical techniques.

It is particularly relevant for companies manufacturing STM microscopes or their components.

COLABORACIÓN BUSCADA

Companies interested in acquiring this technology for **commercial exploitation** are sought through:

- Knowledge licensing agreements.
- R+D (technical cooperation) project agreement for developing projects related to this technology.