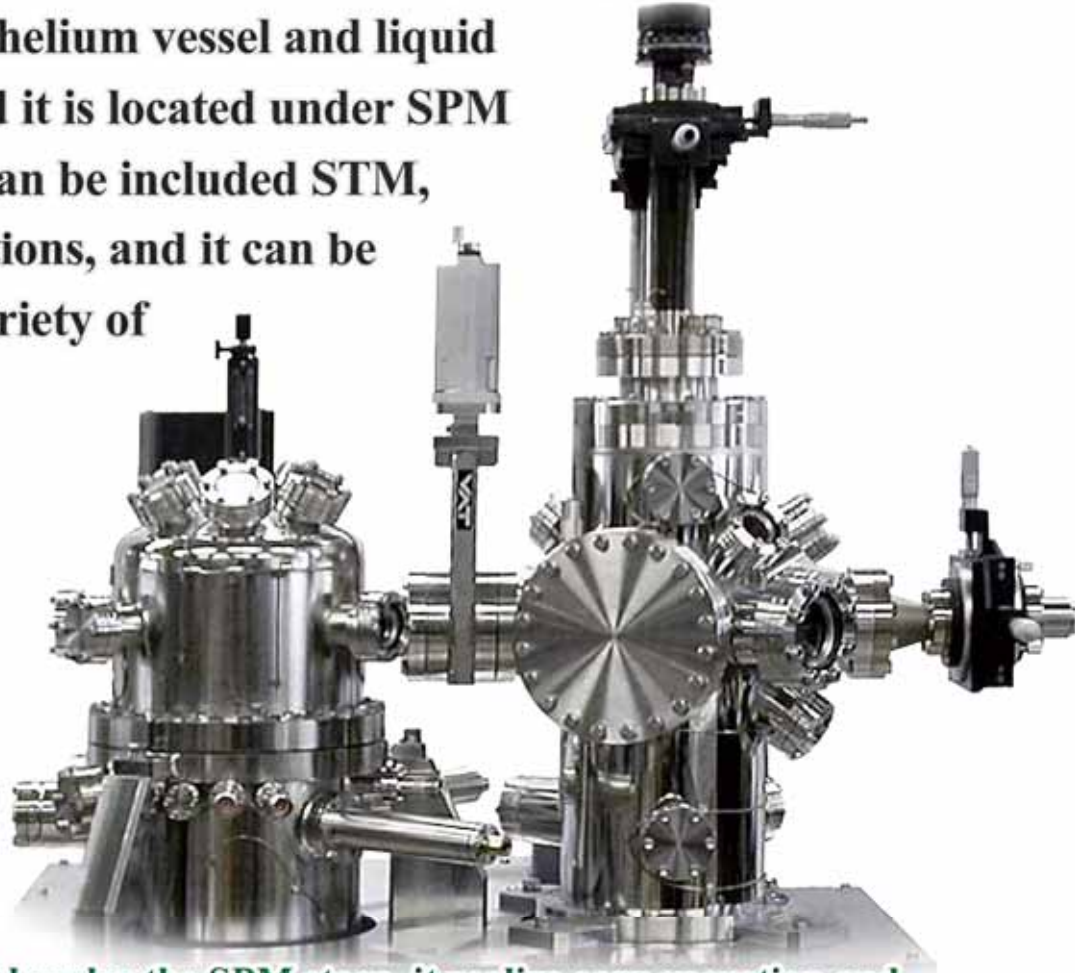


# USM-1400Series UHV Ultra Low Temperature SPM system

This system is constructed with new designed cryostat which is consisted by liquid helium vessel and liquid nitrogen shield, and it is located under SPM stage. The system can be included STM, AFM, SNOM functions, and it can be applied for wide variety of surface science researches in physics, chemistry, and biophysics field.



## Features

- ◆ Cryostat is located under the SPM stage, it realize easy operation and wide variety of applications. Internal vibration isolation is included.
- ◆ Variable temperature operation down to 2.5K is possible.
- ◆ STM, AFM, SNOM functions are possible.
- ◆ In situ deposition of gases and organic molecules are possible.
- ◆ Optical fiber can be installed on the scanner, and exchangeable fiber probe is available on request (Option).
- ◆ Optional piezo driven lens stage can be installed for local emission measurement.
- ◆ Optional 0.5T SC magnet coil can be installed at the sample position.
- ◆ Extend functions related AFM (MFM, EFM, KFM, etc) are available on customer request (Option).

# Line up of the system

## USM-1400S

Include only STM function, optical fiber option and piezo driven lens stage can be included.

## USM-1400SA

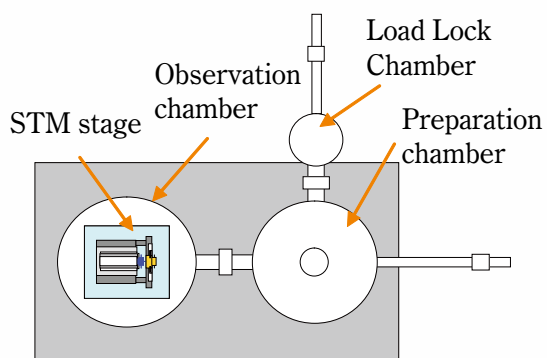
Include STM, AFM functions and options can be included.

## USM-1400SM, USM-1400SAM

Including SC magnet, Sample holder and probe holder are slide in type.

### USM-1400 S

#### System configuration



### Scanning Data by USM-1400

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#### STM Image of Si(111) surface

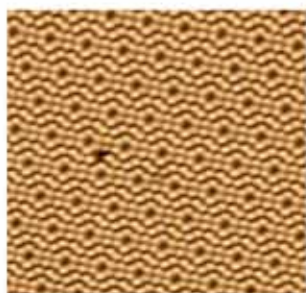


Fig. 1  
Temperature: 83K  
Scan area: 21.72nm X 21.72nm  
Sample bias: 1.8V  
Tunnel current: 0.54nA

#### STM Image of Si(100) surface



Fig. 2  
Temperature: 83K  
Scan area: 15.5nm X 4.3nm  
Sample bias: 1.2V  
Tunnel current: 1.0nA

Instrumental components subject to change without prior notice for improvement in performance.