Hokkai Photo electron Co. Ltd.

.myPEEM
.Spin Rotator
Fluke
ServeyMeter
Fluke
Thermograph
JEOL Desktop SEM
Review PEEM
Suga Thin Film Evaporator
Sun Technologies
Aqua6500

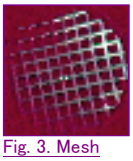

Fig. 3. Mesh image taken by myPEEM.

Fig. 4. 3D Image of myPEEM lenses.

Welcome to Hokkai PEEM Co. Ltd.

http://eost.y7.net/Hpeem/HPeem1.html

Hokkai PEEM Co. Ltd.

Hokkai PEEM Co. Ltd. is a company locating in Sapporo, Hokkaido, inside the Hokkaido University, colaborating with Professor K. Asakura, Catalysis Research Center, Hokkaido University. Sales products are PEEM (Photo Electron Emission Microscope) and various attachments of PEEM. The electron optical design has been made of EOSTsuno , mechanical design and production has been done by Suga Production Co. Ltd., electrical design, production and computer control by CS Tokki Co. Ltd. Basic idea of PEEM and its application are made in the Asakura Laboratory of Hokkaido University. Hokkai PEEM Co. Ltd. sales not only PEEMs but also various energy analyzers, spin rotators, electron lenses made of static and magnetic and various beam deflector and stigmators.

Hokkai PEEM Co. Ltd. locates inside Hokkaido University in Sapporo, Hokkaido, Japan. It was established in 2008 to promote Analytical PEEM under the collaboration of Hokkaido University, Hokkaido Prefecture and some other companies. Hokkai PEEM Co. Ltd. work on sales and services of promoting PEEM instruments.

myPEEM (PhotoElectron Emission Microscope) [Product of Suga Product Co. Ltd.]

The present main product of PEEM (named "myPEEM") is shown in Fig. 2. Basicspecifications of myPEEM are: merculy lump is used as a source of the illumination beam (cahgeable to a laser light), accelerating voltage of 10kV, three electrostatic lenses, electrostatic deflector and stigmator, maximum magnification up to 1000times. High contrast image can be obtained with a help of a suitable aperture insertion.

A main concept of myPEEM is easy operation even for beginers. There are no illumination beam system like TEM (transmission electron microscopes) and SEM (Scanning Electron Microscope) and LEEM (Low energy Reflection Electron Microscopes), and therefore simple in its construction and operation. The electron beam is generated by the photoemission effect found by Einstein. Because the intensity of the electron beam is proportional to the intensity of light, if you usean intense laser light, you can obtain a strong bright PEEM intensity. However, myPEEM has a adjustable selection mechanism of the aperture, you can get a strong contrast of images even use an usual mercury light as seen in Fig.3.

Fig. 4 shows a 3D CAD image of Electrostatic lenses. Fig. 5 is a schematic drawing of the optical system and ray tracing of myPEEM. Parallel illumination beam focusses at the end of the objective lens. The aperture is inserted here in after the objective lens of earth potential. In PEEM, high voltage is applied to the objective lensto accelerate the electron beam, because the emitted electrons from the specimen have only a few electron volt energy. So that, it is usually very difficult to insert the aperture at the exact point of the focus plane. However, in myPEEM, the focussing position (diffraction plane) is set just after the objective lens, where it is the earth potential. It is easy to select the suitable aperture position and get a high contrast. Furthermore, in myPEEM, four stage electro-static lens is used. In usually, such the lens consists of three stage einzel lens. Additional electrode in myPEEM is used to adjust the acurate focus on the diffracted beam on the aperture. This is the key technology of myPEEM.

Fig. 6 shows a photograph of myPEEM attached with an ion-gun and specimen heater. Our myPEEM has a wide vacuum chamber in which various attachments can be installed. Although the specimen is floating on the high voltage of 10kV, if the attachment is not contact with the specimen, it does not influence on the optics. Of course, when you want to change the specimen, high voltage becomes automatically off, and you can tatch the specimen on your hands.

myPEEM	myPEEM with Suga Co.	Ion Gun, Specimen Heater
Electron Optics EOSTsuno	Energy Analyzers Spin rotators	Electron Lenses Beam deflectors
Suga Products. Co. Ltd.	ALD (Thin Film Production)	
JEOL Ltd.	NeoScope (Desktop SEM)	
Tanaka Co. Ltd.	Smashing machine	
	Thermography	
	γ-ray detector	

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Fig.1. Hokkaido University and Hokkai PEEM Co. Ltd.

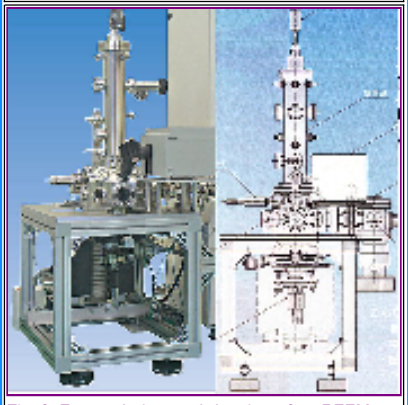

Fig. 2. External view and drawing of myPEEM. The main sales product of Hokkai PEEM Co. Ltd.

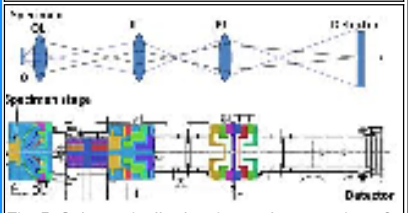

Fig. 5. Schematically drawing and ray tracing of myPEEM.

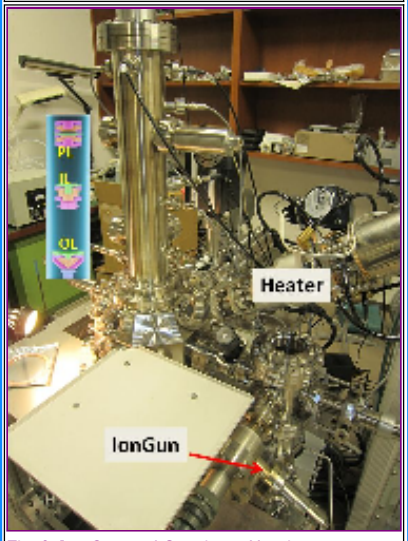

Fig. 6. Ion Gun and Specimen Heating attachments installed in myPEEM.

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