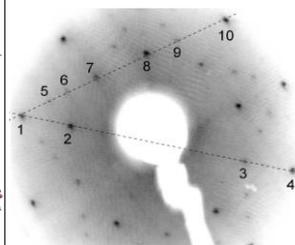
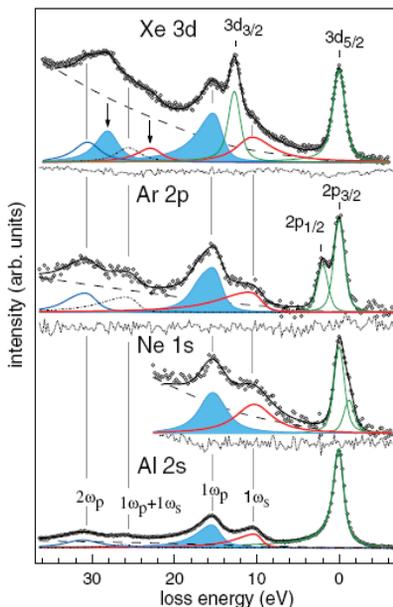
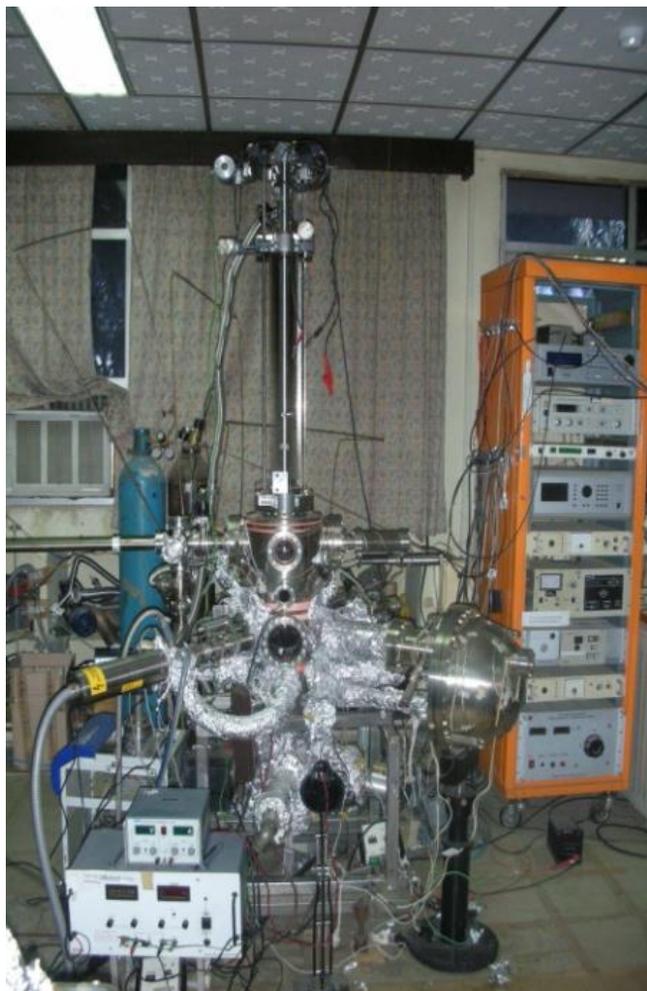


# Photoelectron Spectroscopy



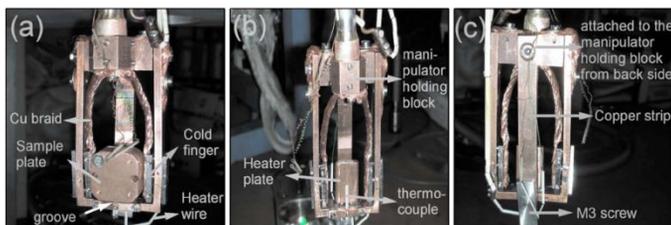
LEED pattern of clean i-Al-Pd-Mn surface at 78 eV electron beam energy. Diffraction spots are numbered to facilitate their identification in intensity profiles shown along the lines (dashed) going through different spots. Intensity profiles (a) along the line joining spot 1 to 4, (b) Profile along the line joining spot 1 to 10. [Phys. Rev. B, **79** 134206 (2009)].

Ne 1s, Ar 2p, and Xe 3d core-level spectra of RG nanobubbles in Al (open circles) compared to the 2s spectrum of aluminum metal. The fitted curve (black line), the main peak components (green lines), the bulk plasmons:  $1\omega_p$  (blue shading) and  $2\omega_p$  (blue line), surface plasmon:  $1\omega_s$  (red thick line), multiple plasmon:  $1\omega_p+1\omega_s$  (black dot dashes) and the inelastic Tougaard background (black long dashes) are shown. The arrows show  $1\omega_p$  and  $1\omega_s$  related to Xe  $3d_{3/2}$ . The core-level main peaks have been normalized to the same height and aligned to zero loss energy. The residuals (short dashes) show the good quality of the fit. [Phys. Rev. Lett. 104, 036803 (2010)]

- Base pressure :  $4 \times 10^{-11}$  mbar (UHV)
- Four level stainless steel chamber with Mu metal shielding.
- X-ray source with Mg  $K_{\alpha}$  (1253.6 eV) and Al  $K_{\alpha}$  (1486.6 eV) radiation and Ultraviolet source
- Hemispherical electron energy analyzer.
- 4-Grid rear view LEED with Auger
- Sample transfer mechanism with a load lock system.
- Sample heating (1000 °C) and cooling (LN<sub>2</sub>)



A versatile Knudsen type effusion cell has been fabricated for growing nanostructures and epitaxial layers of metals and semiconductors. The cell provides excellent vacuum compatibility ( $10^{-10}$  mbar range during operation), efficient water cooling, uniform heating, and moderate input power consumption (100 W at 1000 °C). Rev. Sci. Instrum. 75, 4467, 2004.



Photograph of the sample holder front view mounted on the manipulator a) with the sample plate & b) without the sample plate c) Sample holder back view showing the copper strip attached to the manipulator holding block and the tilt rotation mechanism [Rev. Sci. Instrum. **81**, 043907 2010].