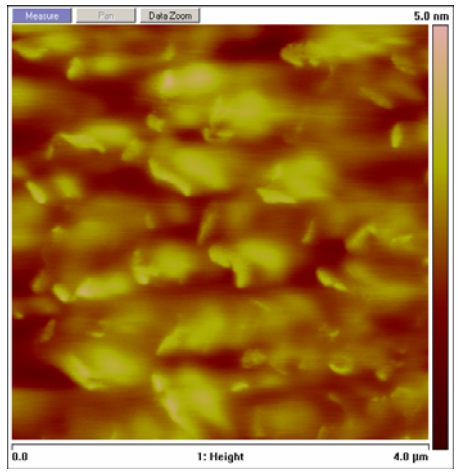
# Ongoing work: atomic force microscopy (AFM), low-energy electron diffraction (LEED), and IR spectroscopy (IRS)

- **AFM and LEED to characterize diamond surface morphology and crystallinity**




- **in-situ infrared spectroscopy of metal film formation on these surface to prove the formation of interface compounds and development of the metal-film conductivity in relation to morphology and crystallinity**

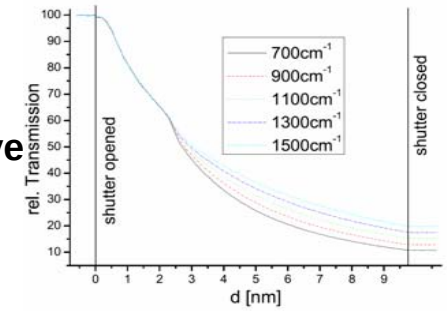



Figure 1: Transmittance change with average Cr thickness $d$ on C(100) for the 5 wavenumbers as given. Deposition starts at 0 nm and ends at 9.7 nm.

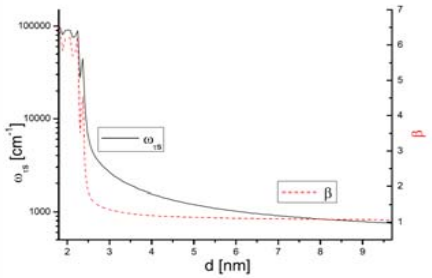
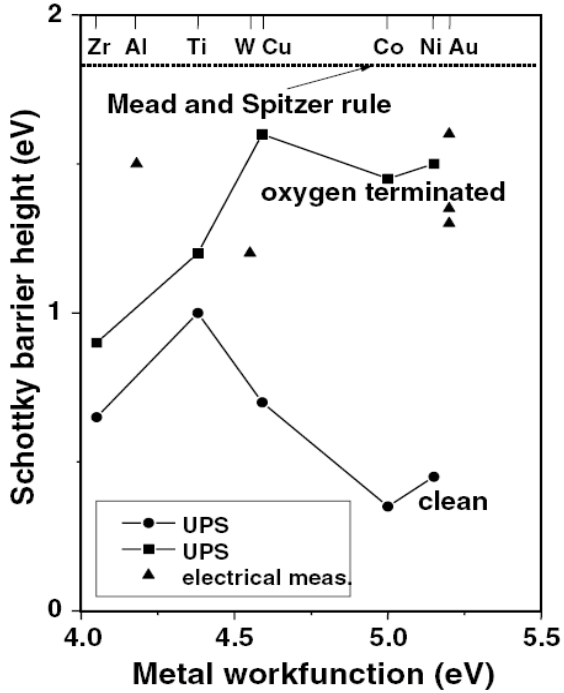



Figure 2: Deviation $\omega_{\tau s}$ from bulk relaxation rate at 300 K and ratio $\beta$ of film to bulk plasmy frequency versus Cr thickness

# Photoelectron spectroscopy (PS)

•Ultraviolett PS allows to determine the electronic structure of the metal-diamond interface
•Barrier heights are influenced by many parameters:
metal, surface termination, post-metallzation annealing , surface defects, doping...
•most existing studies were carried out on doped diamonds

➡ need to perform UPS on metallized E6 diamonds




Barrier heights of different metals on clean and oxygen terminated diamond
Werner, Semicond. Sci. Technol. **18** (2003), 41