

OKANO LAB.

[Fundamental research on vacuum technology]

Division of Vacuum Physics, Dept. of Fundamental Engineering

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Vacuum Physics

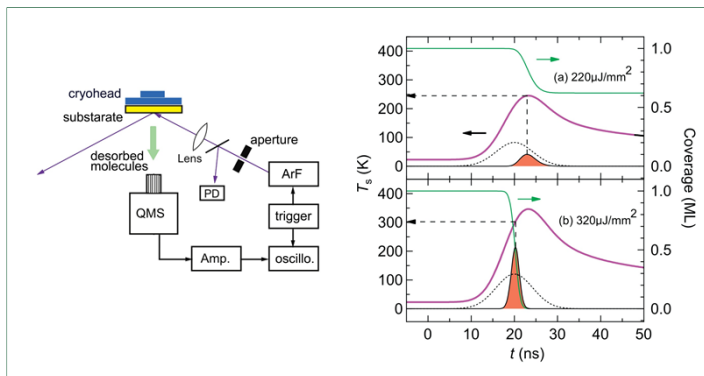
Dept. Applied Physics, Graduate School of Engineering Engineering,

VACUUM, Cornucopia of innovation

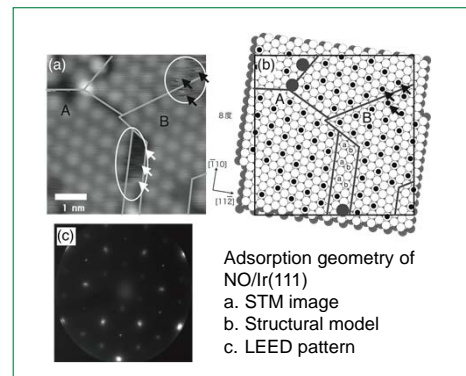
Vacuum is not a void

Vacuum environment is indispensable for the production of new materials and devices that make our daily life more convenient and comfortable. Fundamental science of vacuum technology is closely related with surface science because vacuum on the earth is inevitably surrounded with walls of vacuum vessels. In ultrahigh vacuum, we evacuate molecules trapped on the walls. Our present research topics are interactions of gas molecules with solid surfaces.

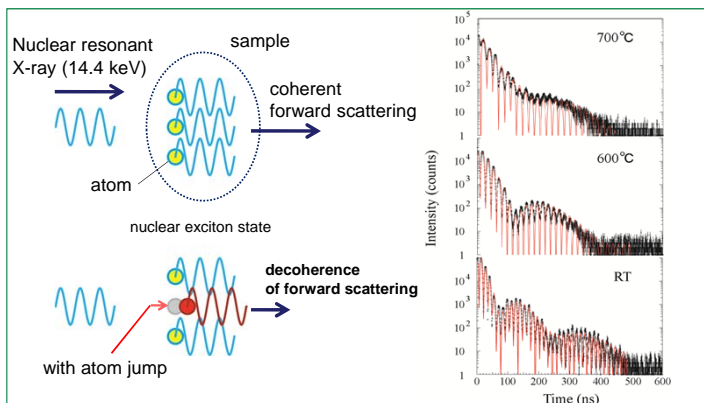
- A) Surface diffusion of gas molecules on cryogenic surfaces
- B) Geometry of adsorbed molecules on solid surfaces
- C) Enhancement of atomic diffusion in pure iron by hydrogen absorption
- D) Field emission from InAlAs/InGaAs superlattice



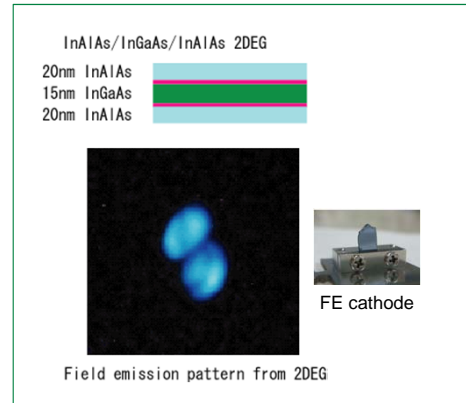
(A) Laser induced thermal desorption and time evolution of temperature, coverage and desorbing molecules after laser irradiation.



(B) Adsorption geometry of NO on Ir(111) determined with STM images and dynamical analysis of LEED pattern.



(C) Measurement of decoherence in time spectra of nuclear resonant X-ray forward scattering for the study on the enhancement of atomic diffusion with hydrogen absorption.



(D) Field emission from 2DEG in InAlAs/InGaAs superlattice.