

## SELENE:Exploration of Lunar Surface by Lunar Radar Sounder

# Takao Kobayashi[1], Takayuki Ono[2], Hiroshi Oya[3]

[1] Geophys. Tohoku Univ., [2] Department of Astronomy and Geophysics, Tohoku Univ., [3] Space Commu. Fukui Univ.

Depolarization observation and synthetic array analysis of LRS are examined so as to extract further information of lunar surface. In the

depolarization receive mode, the alternative antenna of a pair of dipole antennas which are diagonally installed is used as the receive antenna so that depolarization (cross polarization) component of echo signals are received. As Kirchhoff

theory predicts more depolarization is observed in back scattering echoes from further range: their intensity is comparable to the like polarization echoes in far ranges.

The fact implies that the polarimetric SAR observation of lunar surface is possible with LRS. In the synthetic array analysis, a virtual two-dimensional array

antenna is synthesized by taking phase correlation of number of LRS data.