

## A Near-Infrared Spectroscopy in Magnetic Fields Above 100 T

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<b>First Author</b>	
<b>Last Author</b>	
<b>Authors</b>	Yokoi, H; Effendi, M; Kojima, E; Takeyama, S;
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<b>Abstract</b>	Development of the first measurement system for near-infrared absorption spectra between 0.9 and 1.7 $\mu\text{m}$ under ultra-high magnetic fields is reported. Spectral signals were integrated for 1 $\mu\text{s}$ with an InGaAs photodiode array around the top of a very short pulsed megagauss field. The magnetic fields were generated using a single-turn coil system. The measurement system was demonstrated in the study of exciton states in single-walled carbon nanotubes up to megagauss fields. A nearly noiseless absorption spectrum with well-resolved absorption peaks was obtained at 105.9 T in the Voigt configuration where the magnetic field was applied parallel to the alignment of the nanotubes.
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<b>Author</b>	Dr.Eng MUKHTAR EFFENDI, S.Si, M.Eng