Tohoku University/
NIT Sendai College
Technology

# High-resolution spectroscopic imaging system

- **A compact and highly accurate spectroscopic imaging system**
- **Visual information can be obtained non-destructively and quickly.**

## Overview

Spectroscopic imaging has been applied to analyze and identify substances, but conventional spectroscopic imaging system has problems such as miniaturization of system and high resolution analysis.
The invention relates to a spectroscopic imaging system combining a highly sensitive image sensor and a high-speed tunable bandpass filter, and has the following features.
・Non-destructive, non-contact, rapid spectroscopic imaging are possible.
・To provide a compact, portable, low-cost spectroscopic imaging system.
・It is possible to obtain a high-resolution spectroscopic video image.
・The transmission wavelength can be controlled by applying a voltage to the liquid crystal.
The invention can be applied to component analysis of food production and processing, contamination inspection, growth and yield investigation in agriculture, component analysis in the medical field, etc.

## Product Application

- Spectroscopic imaging camera and system
- Component analysis and identification for agriculture, medical field, food industry, etc.

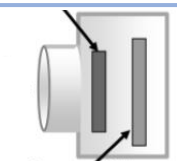
## IP Data

IP No. : JP6860772
Inventors : SUGAWA Shigetoshi, FUJIKAKE Hideo, ISHINABE Takahiro, KURODA Rihito, WAKO Kazuhiro
Admin No. : T17-025

## Configuration and application examples

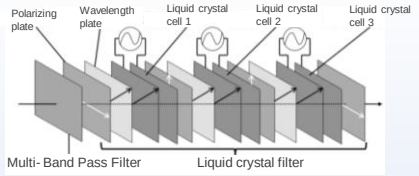
**Configuration**

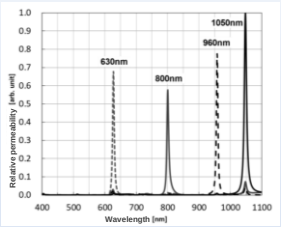
Tunable Multi- Band Pass Filter

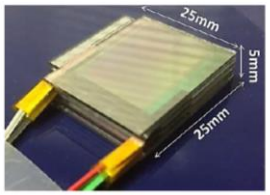


CMOS image sensor

Spectroscopic imaging system of the invention

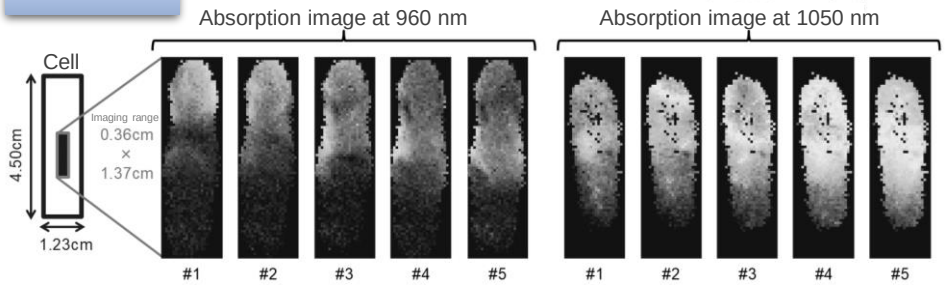



Small Tunable Multi-Band Pass Filter in the system
⇒ The transmission wavelength can be adjusted by applying a voltage to the liquid crystal

**Application example**




Example of imaging : 5 mg/dL glucose solution
(transmission wavelengths of 960 and 1050 nm were selected)
⇒ **The diffusion image of glucose were obtained.**

If you are interested in the invention, please feel free to contact us.

## Related Works


[1] ITE Technical Report Vol.41,No.32 IST2017-51(Sep.2017)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