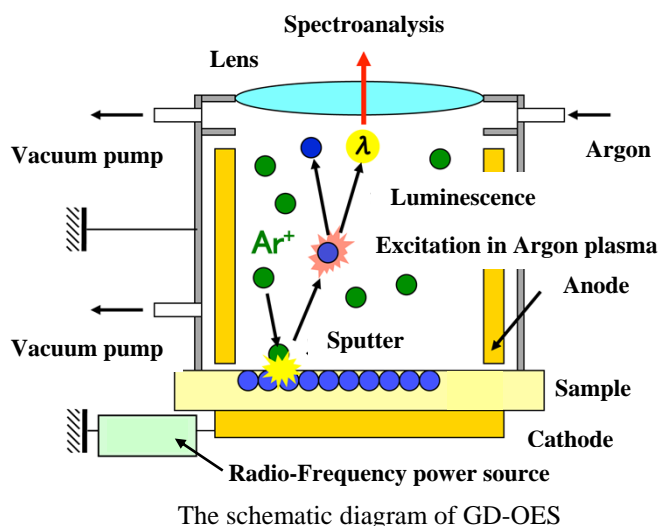


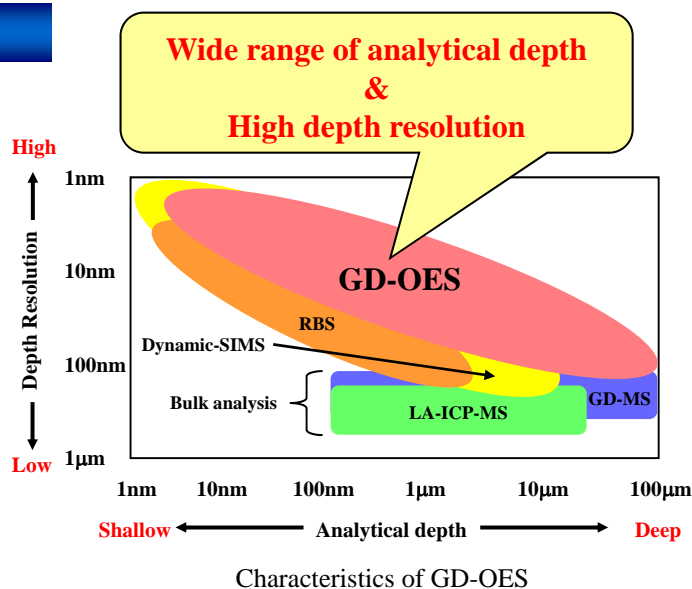
# Characterization of CIGS solar cells by GD-OES

**GD-OES** (Glow Discharge Optical Emission Spectroscopy) provides fast, simultaneous analysis of all elements of interest including the gases such as nitrogen, oxygen, hydrogen and chlorine, and is a useful tool to investigate from the surface down to more than 150 microns with a depth resolution that can be as good as 1 nm. Here, we show an example of the depth profiling of several elements of the CIGS (Copper Indium Gallium Selenium) solar cells by GD-OES.

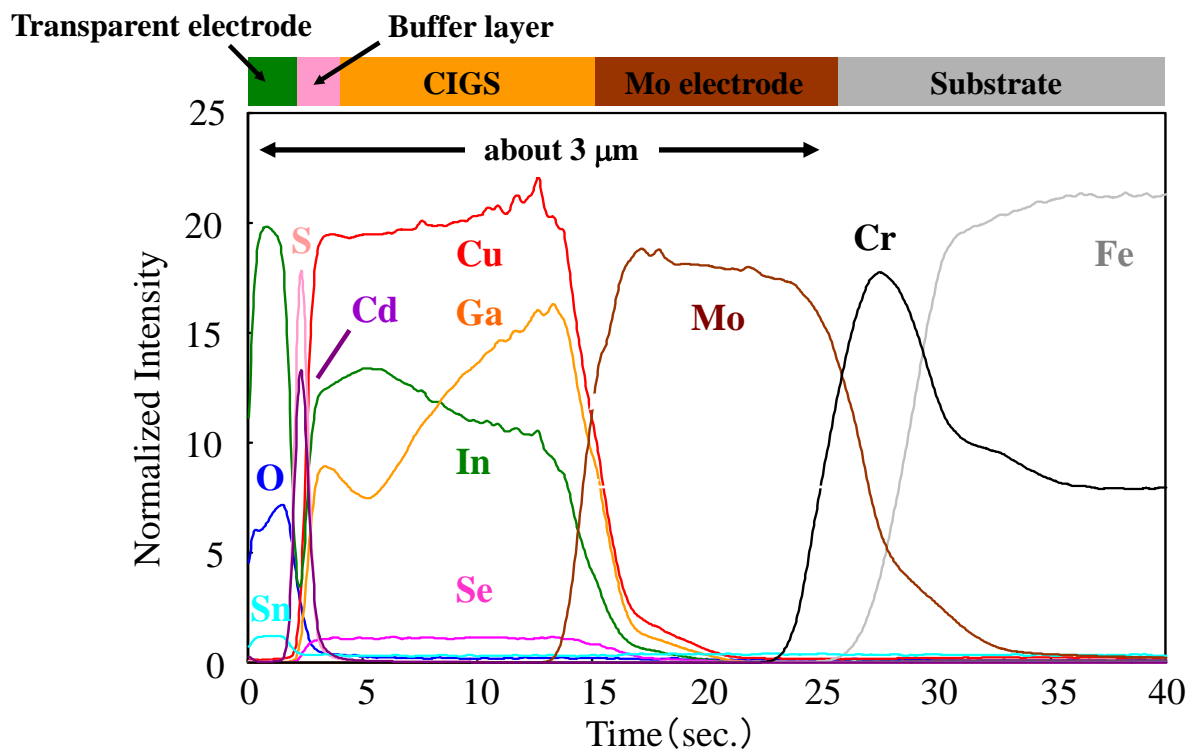
## 1. The principle and characteristics of GD-OES



The schematic diagram of GD-OES



## 2. Depth Profiling of several elements of CIGS solar cells



GD-OES can provide elemental depth information about CIGS solar cells from the surface of transparent electrodes to substrates.

