



GoSpectro

The power of spectroscopy at your fingertips

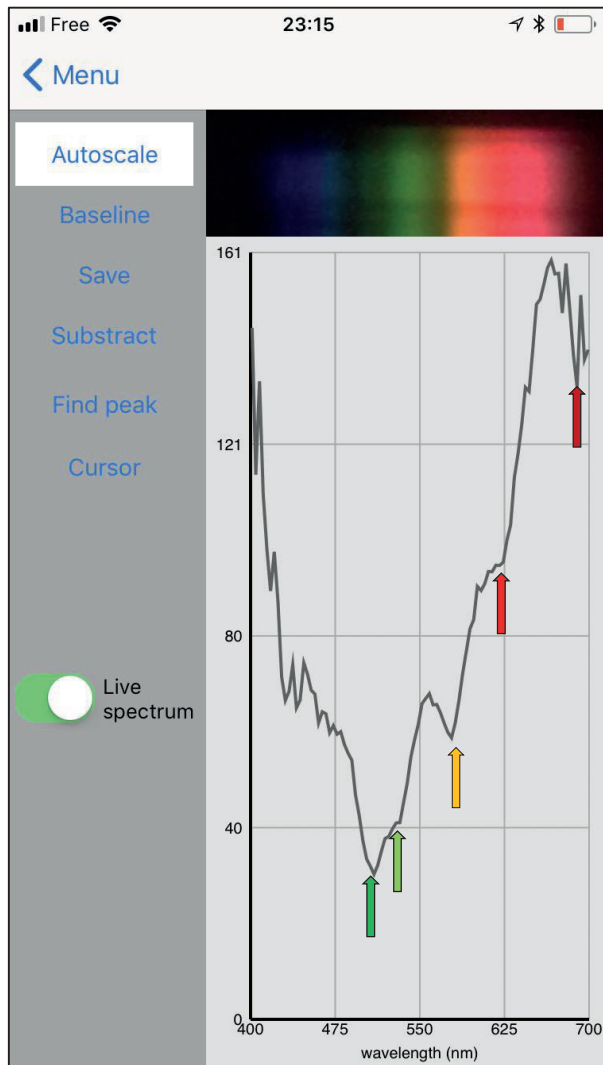
Gemology spectra

Toward the creation of a gemology spectral database



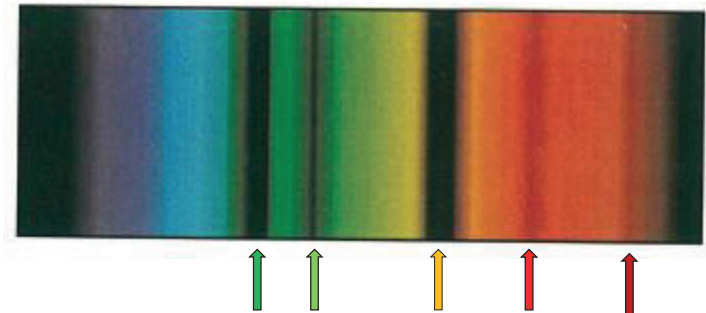
GoyaLab

Red Garnet (Fe₂)

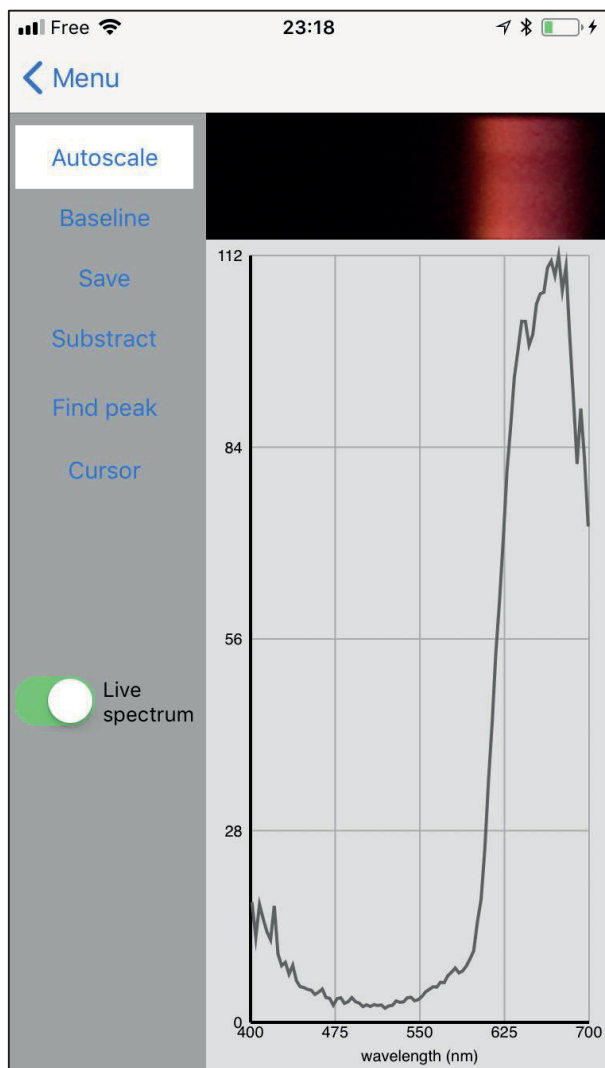


5 dark lines with variable width and strengths at 510, 525, 580, 625 and 680 nm.

Spectrum in the literature



Red glass (Se)

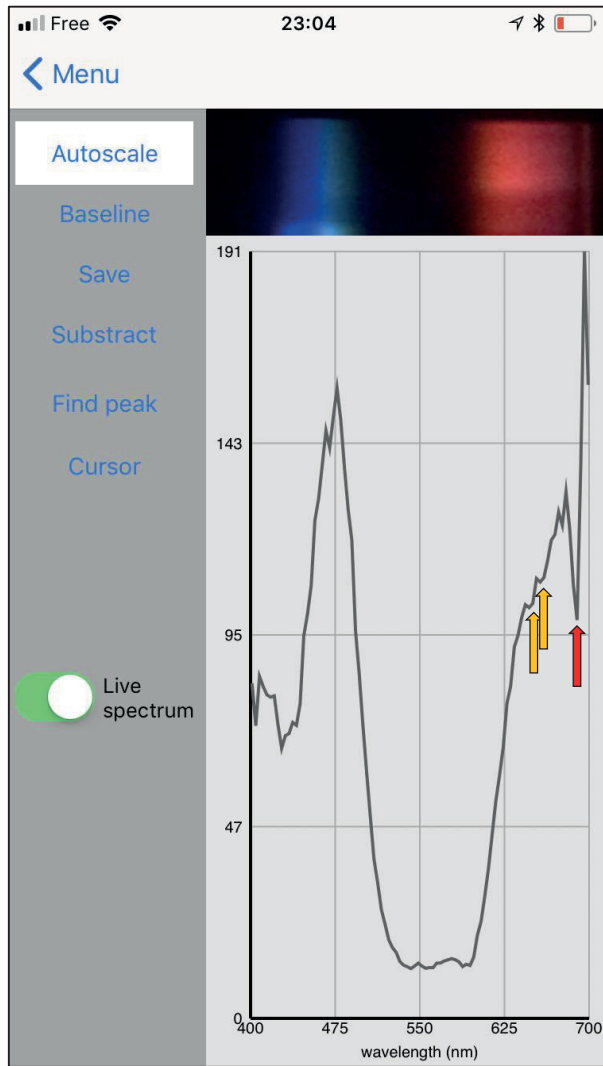


Only one band in the red region.
No transmission observed in the blue region.

Spectrum in the literature

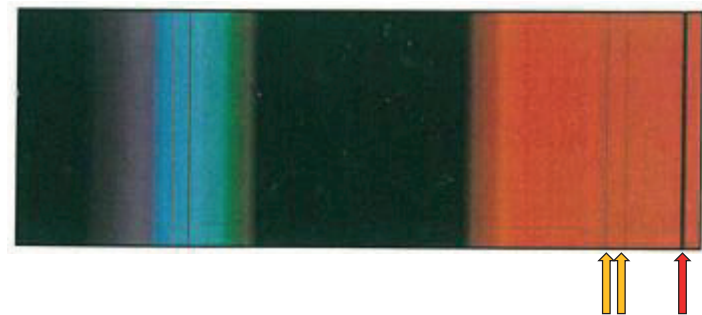


Synthetic Ruby (Cr³⁺)

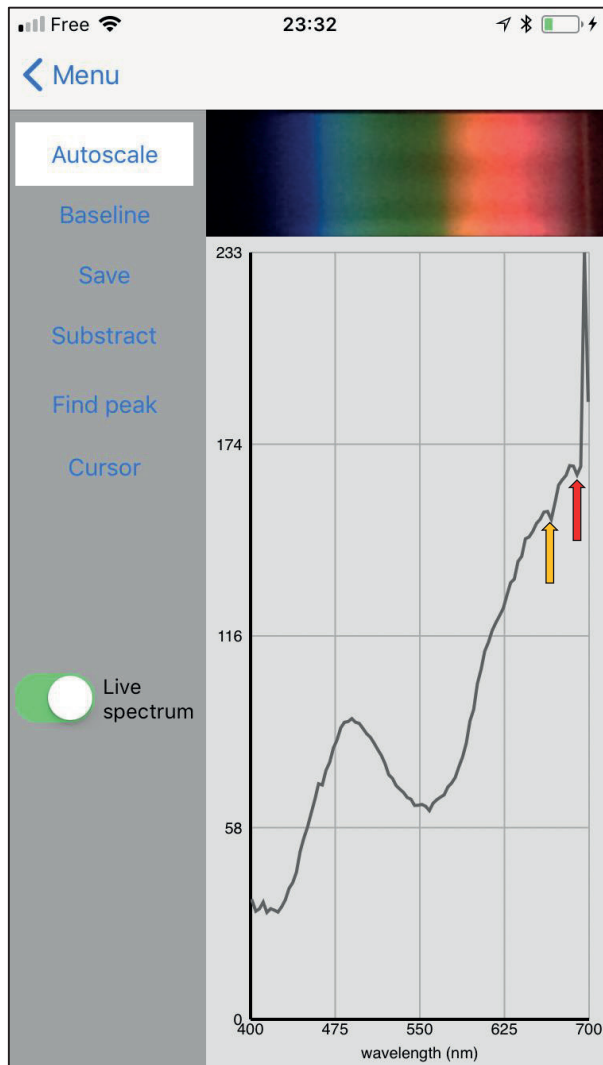


One broad dark line around 550 nm.
One sharp dark line around 680 nm.
One sharp photoluminescence line around 690 nm.

Spectrum in the literature

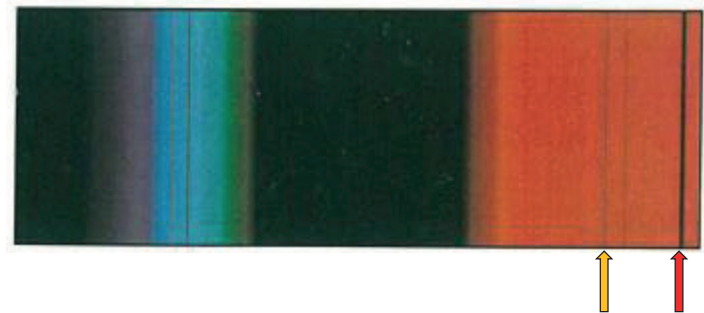


Natural Ruby (Cr³⁺)



Same as synthetic Ruby except that the absorption band at 550 nm is not as strong.
The photoluminescence line seems a bit more intense.

Spectrum in the literature



Red Spinel (Cr) natural



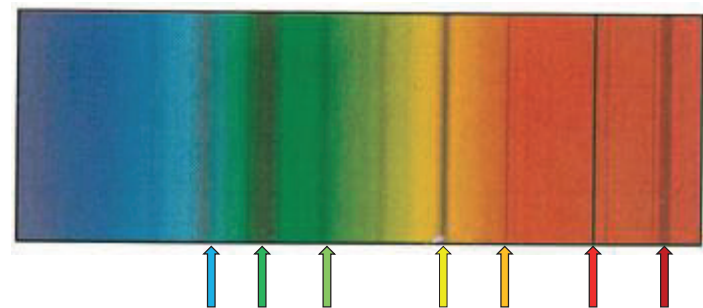
Broad absorption band below 550 nm.
No specific feature observed.
No reference spectrum available.

Zircon (Cr²⁺)



Characteristic spectrum with multiple sharp absorption lines of varying intensities (490, 515, 540, 560, 590, 655, 690 nm)

Spectrum in the literature



Peridot (Fe)

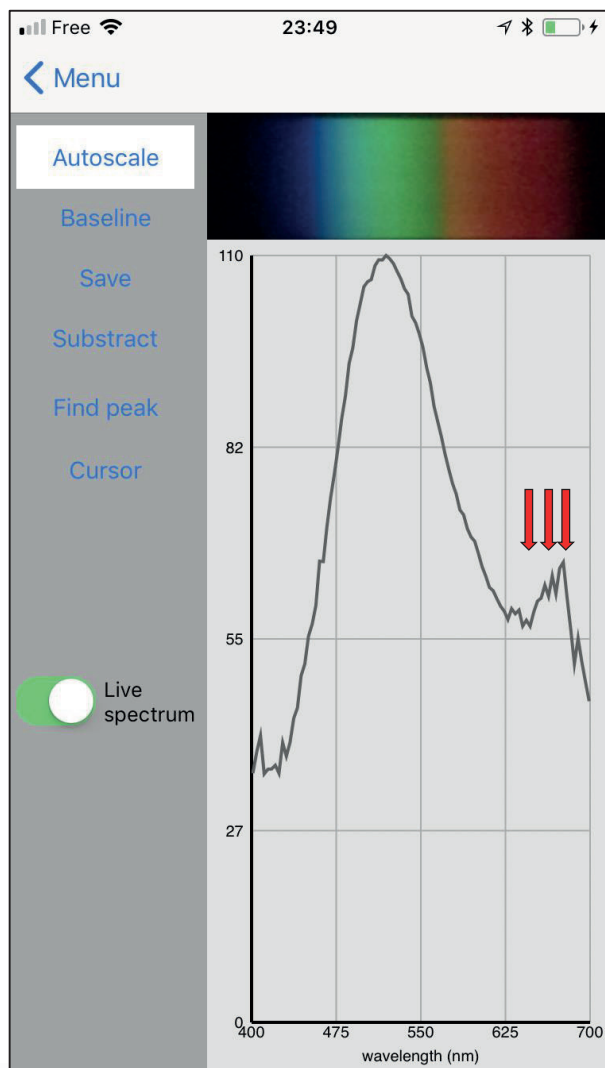


3 sharp dark lines, hardly visible in the blue part of the spectrum.

Spectrum in the literature

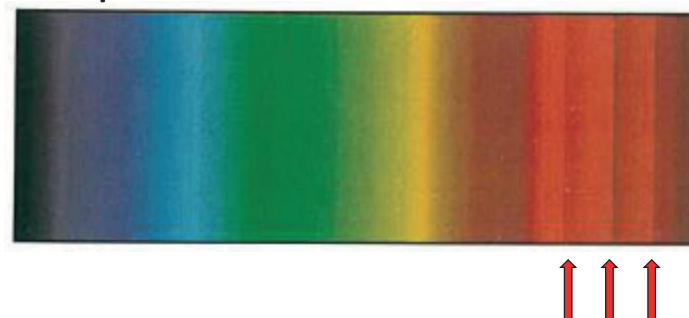


Emerald (Cr)

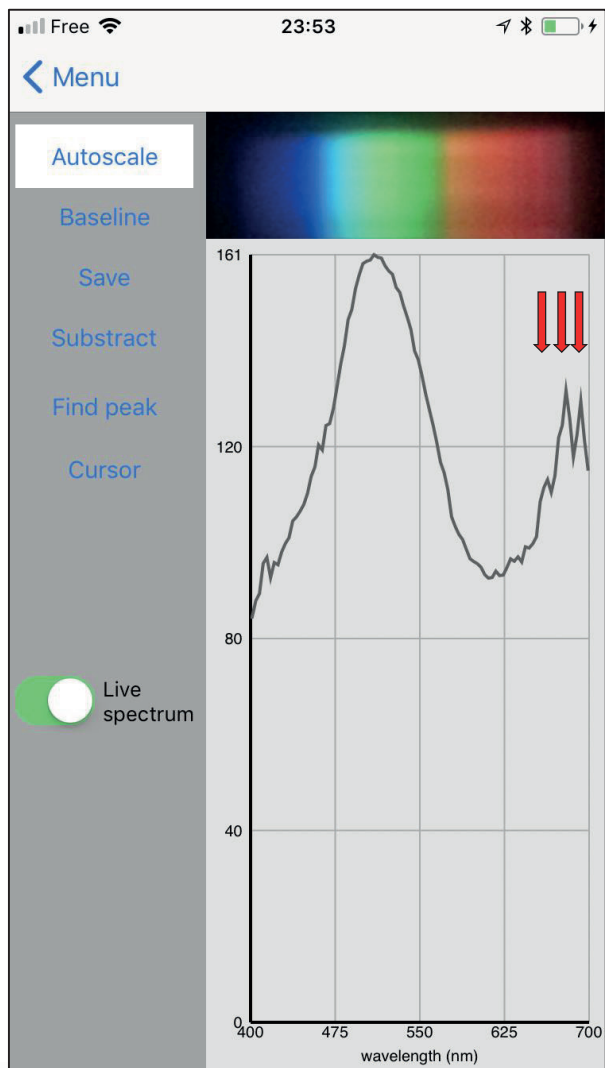


One main transmission band centered at 515 nm
Series of peaks above background around 660 nm.
No fluorescence observed under laser excitation.

Spectrum in the literature



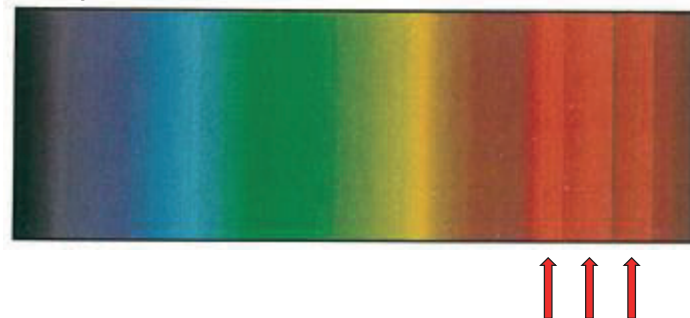
Hydrothermal Emerald synthetic (Cr)



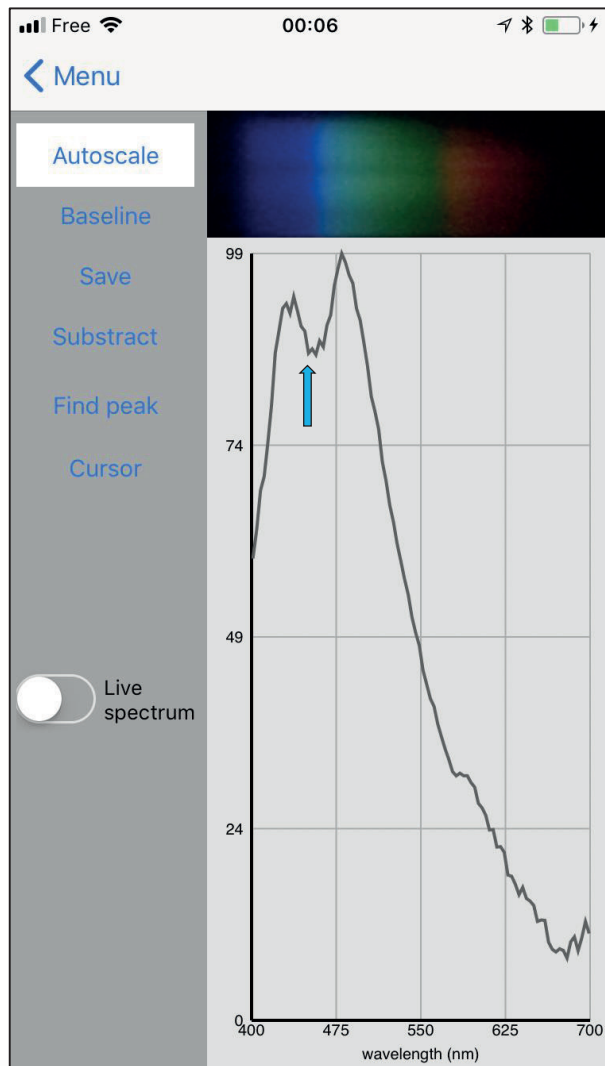
One main transmission band centered at 515 nm (slightly blue-shifted compared to natural emerald).

Series of sharp lines around 660 nm.
Fluorescence observed under laser excitation.

Spectrum in the literature

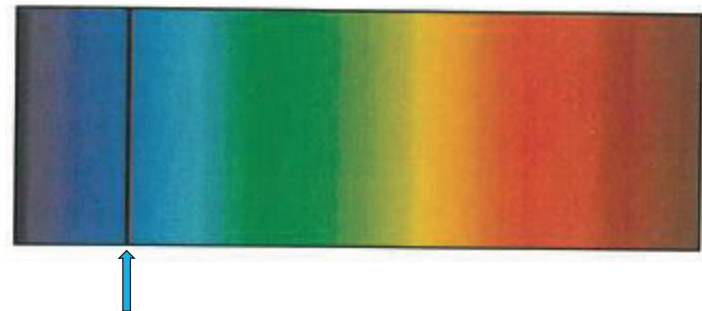


Blue Sapphire natural (Fe³⁺)



One absorption line at 450 nm.

Spectrum in the literature



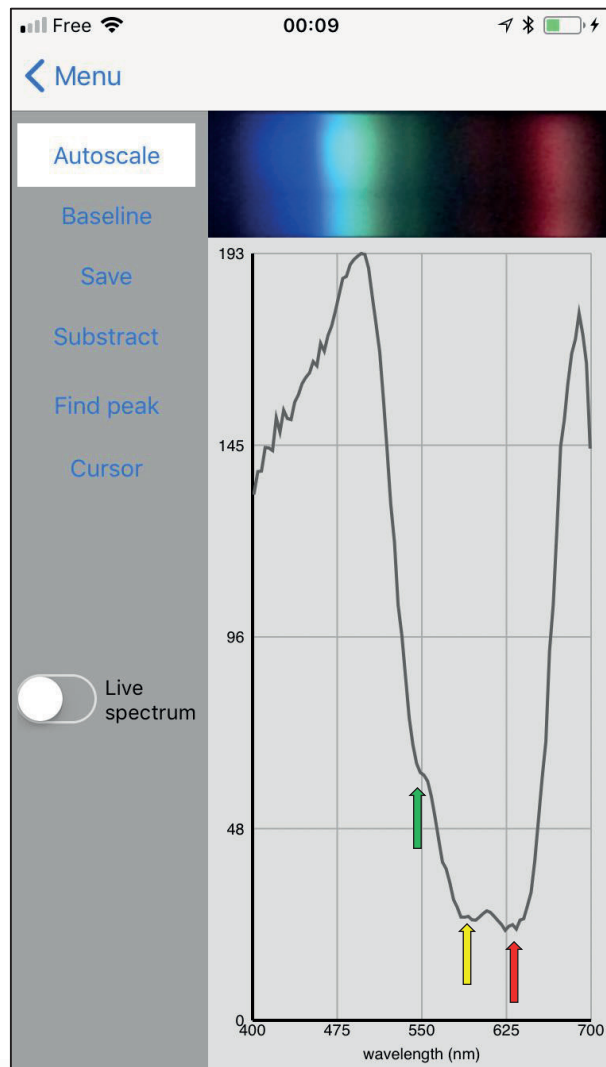
Cobalt blue glass



One very broad absorption band centered around 600 nm.

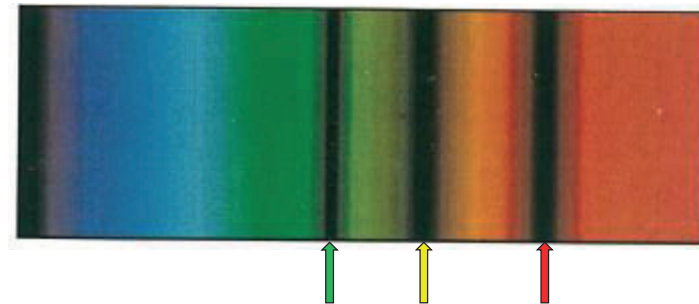
Only two fairly broad transmission bands in the blue and red ends of the visible spectrum.

Blue synthetic Spinel



Three sharp dark lines around 550 nm, 585 nm and 630 nm.

Spectrum in the literature

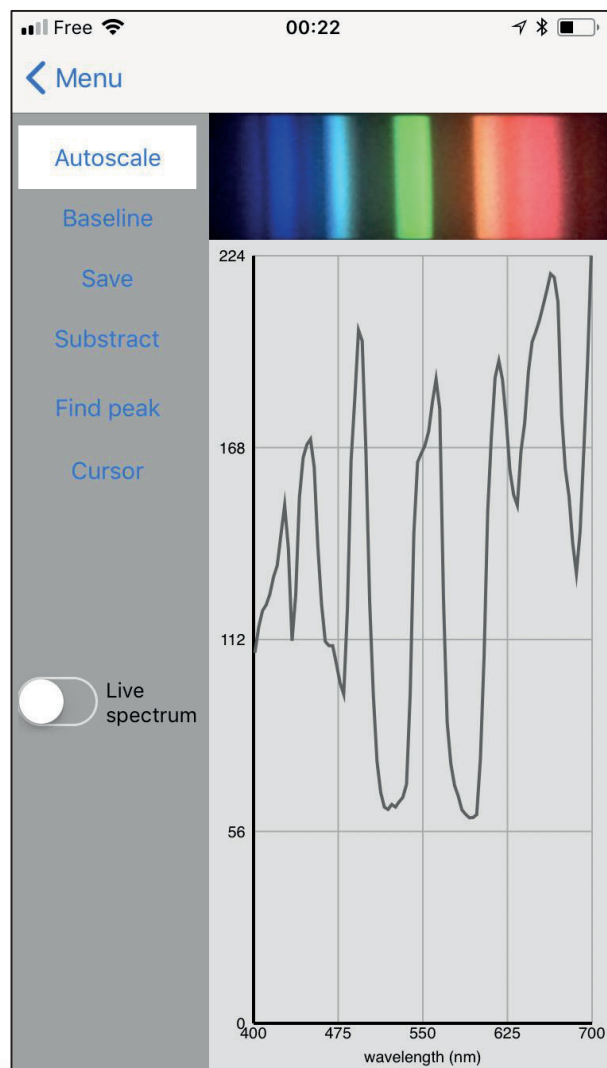


Apatite



Three sharp dark lines around 530 nm and 588 nm.

Phosphate glass colored by Nd



Neodymium exhibits many absorption lines throughout the visible spectrum.