Talk about science and science teaching

NSTA Blog   **NSTA** National Science Teachers Association

RSpec-Explorer

📁 **NSTA Recommends: Technology**

By *Edwin P. Christmann* | Published: April 9, 2015

The RSpec-Explorer is a small, portable spectroscopy camera that connects to a computer. It can be used for measuring spectra from light sources (including flames, screens, etc.) and for evaluating the emission signature from gas tubes.

The software package can be downloaded from www.fieldtestedsystems.com/getrex, which offers a free 30-day trial before a license purchase is required. Once downloaded, the camera is connected to a computer via a USB cable. After the USB cable is connected, videos and images can be recorded/captured and saved. Subsequently, both the image from the camera and the corresponding spectra can be viewed simultaneously; from either the saved image/video file or from a live feed. In addition, images can be imported for spectral analysis and the files can be read in both .bmp and .jpeg formats.

Another nice feature is the ability of the RSpec-Explorer to handle FITS data files, which are common in the field of astronomy. Therefore, images captured by NASA's Hubble telescope and other astronomy sources can be imported and analyzed by allowing you to import and export data points into the program for analysis.

https://www.youtube.com/watch?v=eLzZwrOBaaU

The spectrograph is also highly customizable with a variety of features that allow the user to select a part of an image or camera view for analysis. Spectral data can be saved on the graph and overlaid with other emission spectra to cfor the sake of comparison. Another nice feature is the zoom features that allow you to get a closer look at different parts of the spectrograph. Once captured, the spectrograph can be saved or copied, and inserted into almost any document type. The camera automatically adjusts for different light inputs and reduces external light noise with several manual adjustments. The device can be calibrated for more precise readings as well.

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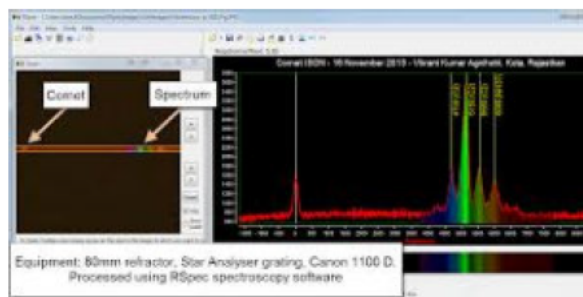NSTA Learning Center

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Equipment: 80mm refractor, Star Analyser grating, Canon 1100 D. Processed using RSpec spectroscopy software

Overall, he RSpec Explorer is very easy to use   only minimal setup is required to begin displaying and analyzing spectra. In addition, the wide variety of options for calibration and customization of views gives his device the ability to do precision work. The device is sturdy and functioned well in a classroom setting. The estimated cost for the camera, tripod and software is $395, which make it an affordable choice for teacher demonstrations.

Our thanks to Arbor Scientific for making the Rspec-Explorer available for review.

Edwin P. Christmann is a professor and chairman of the secondary educa ion department and graduate coordinator of the mathematics and science teaching program at Slippery Rock University in Slippery Rock, Pennsylvania, **Corissa Fretz** is a graduate student and a research assistant in the mathema ics and science teaching program at Slippery Rock University in Slippery Rock, Pennsylvania, and **Katherine Wingard** is a graduate student and a research assistant in the ma hematics and science teaching program at Slippery Rock University in Slippery Rock, Pennsylvania

This entry was posted in *NSTA Recommends: Technology* and tagged *camera, RSpec-Explorer, spectroscopy*. Bookmark the *permalink*. Trackbacks are closed, but you can *post a comment*.

4 COMMENTS

Pat
Posted May 5, 2015 at 7:27 am | *Permalink*

We use this system in our chemistry and physics classes wi h gas tubes. We LOVE it! It's an amazing piece of technology. Easy to setup, zero learning curve.

Reply

Jim Ludlow
Posted December 21, 2015 at 11:16 am | *Permalink*

I've used handheld foil and plastic spectrometers in my classroom many for years. And my students and I suffered from it.

After reading this review, I bought one on Amazon. I'm pleased. It has eliminated the frustration and time-wasting of trying to get my students to all see a live spectrum.

As he review above states, setup time is about 60 seconds. There's no calibra ion or steep learning curve. It's really a point-and-shoot device. Highly recommended.

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Linda
Posted October 12, 2016 at 9:13 pm | *Permalink*

Last year my department purchased one for us to use. We love it! The live video view makes it incredibly easy for my students to grasp what's going on.

We use it in both Chemistry and Physics classes as well as General Science classes. I don't know how we got along without it.

And their Periodic Table of Spectra is wonderful! Check it out on their site.

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