

THE DEMONSTRATION CORNER

"Classroom Demonstration of Spectra"

by

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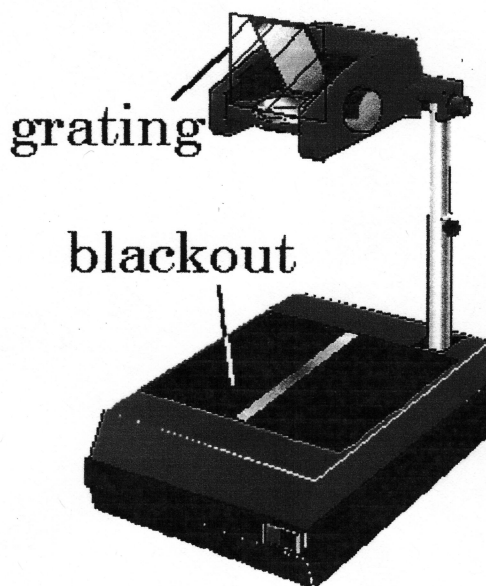
The availability of large sheets of plastic replica gratings has greatly increased the ability to show spectra to classroom-sized groups and, in the process, put on a nice light-show.

One way to do this is shown in the figure. A piece of grating is mounted in a stiff cardboard frame (to prevent curling or warping) and hung or taped in front of the objective mirror of an overhead projector. Be sure that the grating lines are vertical. Using opaque cardboard, mask off all of the light-base of the overhead except for a slit about 1 cm wide down the centre as shown. The result on the projector screen will be two spectacular continuous spectra, one on each side of centre.

So far the demonstration is obvious and perhaps already well known, but here are a few interesting wrinkles. It is easy to demonstrate absorption spectra by laying transparent coloured materials over the slit. The coloured transparency sheets are particularly good for this. It is best to put the absorbing material over just half of the slit so that the contrast with the pure white-light spectrum is apparent. Even shallow trays of absorbing solutions can be used, e.g., fluorescin, CuSO_4 , chlorophyll, etc.

Another interesting demonstration is to reverse the blacking on the overhead projector, that is, leave the entire light table uncovered except for a 1 cm wide opaque strip where the slit used to be. This shows the subtraction of colours. With no blackening the white splash of light on the screen can be thought of as the superposition

of a number of white-light spectra. The opaque strip subtracts one of these leaving a spectrum of tints on the screen. Again it is most effective if one half of the light table is left as shown and the lower half is reversed.



Sheets of diffraction grating 6" square can be obtained from Efstonscience in Toronto. See <http://www.e-sci.com> and search under "diffraction sheet."

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Submissions describing demonstrations will be gladly received by the column editor
