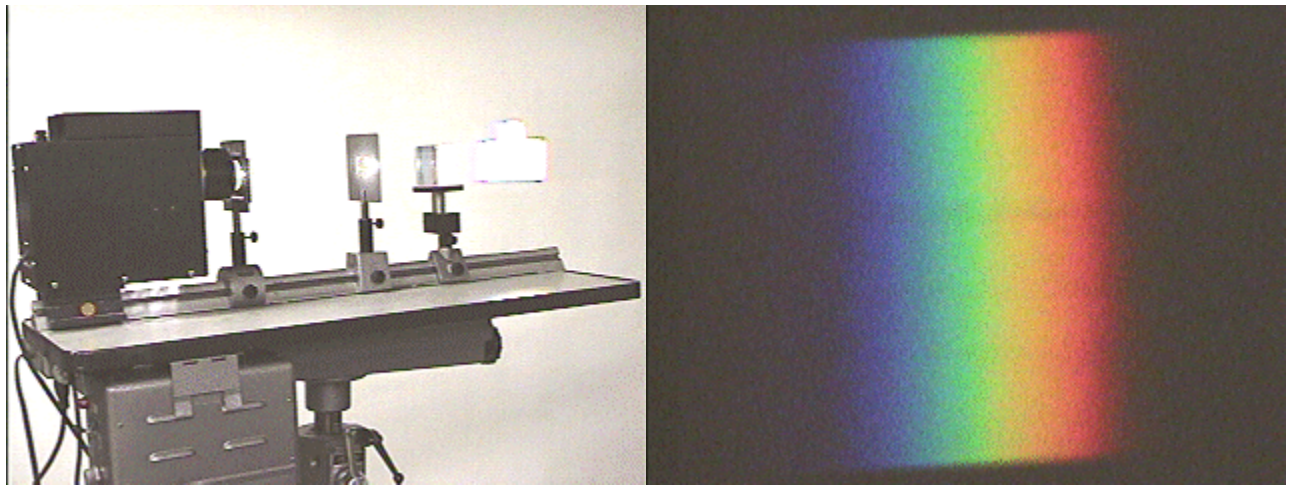
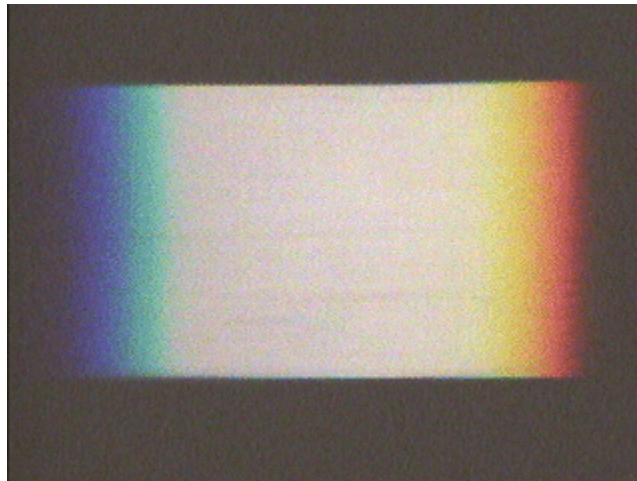


## Question #13

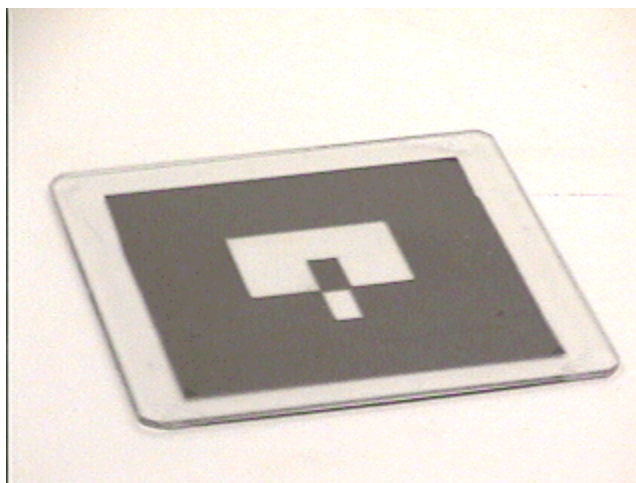
When light collimated by a slit passes through a prism and is focused on a screen the well-known spectrum of white light is produced; this is shown in the photograph at the right below. The experimental setup, photographed at the left below, consists of a bright light source, a baffle with the slit immediately in front of the light, a prism, and a lens, just before the prism, to focus an image of the slit onto the screen, seen at a distance in the photograph. The image is purposely washed out in the photograph.



If you pass light through the prism and focus it on the screen without a defining slit, it creates a wide white band with a blue color at the maximum angle of bend and a red color on the minimum angle of bend, as shown in the photograph below.



Suppose that the slit is "inverted" so that the opening becomes opaque and the material surrounding the slit becomes transparent, creating a sort of "negative" slit. In the figure below these three "slit" configurations are photographed: from bottom to top, the regular slit, the "negative" slit, and no slit.



When you create a "spectrum" using the "negative" slit, how will the spectrum displayed on the screen be changed, if at all?

- (a) The spectrum will be the same.
- (b) The spectrum will have colors complementary to the original white light spectrum.
- (c) The light on the screen will be white.
- (d) There will be a faint spectrum superposed on the brighter white background.

Click here for [Answer #13](#) after May 22, 2000.

---

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).