Answer #210

The answer is (d), as seen in the photograph below and an mpeg video showing what happens to the straight line of laser light (without the heated wire) when current is run through the wire, causing it to heat up.

The hot wire heats the air adjacent to the wire, and the heat rises, yielding an air temperature above the wire that decreases with distance from the wire. The index of refraction of the air, which decreases with increasing temperature, then creates a type of lens, bending the laser beam upward to cause the small "bubble" in the line produced by the laser beam when it is expanded horizontally by the vertically oriented cylindrical lens.

Archive 11

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.