Discussion Question Answer Key
Curiosity, Creativity, Compassion: Albert V. Baez

1. Where did Albert Baez earn his Ph.D.? What subject did he study?
He earned his Ph.D. in physics, specifically x-ray optics, from Stanford University.

2. Describe the theory/technique that Baez and his advisor Paul Kirkpatrick developed in 1948.
Kirkpatrick and Baez used perpendicular grazing-incidence mirrors to focus x-rays, in the hopes of developing a new x-ray microscope. This arrangement is now known as the Kirkpatrick-Baez (K-B) configuration.

From 1961-1967 he worked as the first head of the science teaching division of UNESCO in Paris, working on programs for Africa, Latin America, and Arab states. From 1967-1974 he made almost 100 films on physics principles for the Encyclopedia Britannica Educational Corporation.

4. What did Baez do after retiring?
He served as president for the North American branch of Vivamos Mejor (Let Us Live Better), seeking to improve the quality of life for Latin Americans thorough community projects and science education.

5. What was Baez’s official position and task in Baghdad?
He was chief of the UNESCO mission to teach and establish science departments in Baghdad.

6. Why do you think Baez was determined to establish a physics laboratory?
Baez valued the hands-on and experimental learning that a strictly theoretical study of physics lacked, and sought to provide Iraqi students with opportunities to conduct physics experiments and learn about the laboratory setting.

7. How do you think Baez’s opinions about working on classified defense projects compared to those of the average 1950s physicist?
[Student answers will vary, although it will likely be acknowledged that Baez was something of an outlier in his time]

8. Do you think that his ideological and/or political views led to any difficulties in finding work opportunities?
[Student answers will vary]

Grazing-Incidence Angle Worksheet Question Answers:

1. How do the results of the trials compare?
Students should observe that across materials, the smaller angles of incidence typically led to an increased likelihood of absorption. As the angles neared 90°, reflection should have occurred most reliably. The materials placed along the wall should progressively increase the likelihood of absorption, as well.

2. When was a photon most likely to be absorbed?
When the angle of incidence is smallest (i.e., most perpendicular to the wall).