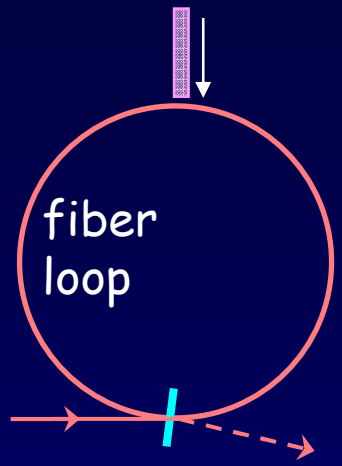
FYI: Modern Applications in Navigation

Consider the following "Sagnac" ["sahn-yack"] interferometer. Here the two possible paths are the clockwise and counter-clockwise circuits around the fiber loop.



1. If we insert an extra piece of glass as shown, how does the relative path length change?

It doesn't! Because the interference paths completely overlap, the Sagnac is a remarkably stable interferometer, e.g., to temperature fluctuations in the fiber.

2. How could we change the relative path-length difference, and thereby change how much light exits the bottom port?