CLAIMS

1. A detector, comprising:

a first avalanche photodiode and a second avalanche photodiode configured to amplify and to output a signal current according to input light;

a first voltage application unit configured to apply a first bias voltage to the first avalanche photodiode and a second voltage application unit configured to apply a second bias voltage to the second avalanche photodiode;

a differential amplifier configured to be connected in parallel to the first avalanche photodiode and the second avalanche photodiode and to amplify a difference between a first signal current output from the first avalanche photodiode and a second signal current output from the second avalanche photodiode;

an optical attenuator configured to attenuate input light to the first avalanche photodiode or input light to the second avalanche photodiode; and

a feedback controller configured to control an amount of attenuation of the input light by the optical attenuator so that a low frequency component of a first monitoring current in the first avalanche photodiode and a low frequency component of a second monitoring current in the second avalanche photodiode are equal.

2. The detector according to claim 1,

wherein the first monitoring current is a first bias current flowing through the first avalanche photodiode due to application of the first bias voltage, and

the second monitoring current is a second bias current flowing through the second avalanche photodiode due to application of the second bias voltage.

3. The detector according to claim 1,

wherein the first monitoring current is the first signal current output from the first avalanche photodiode, and

the second monitoring current is the second signal current output from the second avalanche photodiode.

4. A device, comprising:

a light source configured to output inspection light toward a measurement target;

a magneto-optical crystal configured to be disposed so as to face the measurement target; and

the detector according to claim 1,

wherein the first avalanche photodiode detects first inspection light having a first polarization component output from the light source and reflected by the magneto-optical crystal, and

the second avalanche photodiode detects second inspection light having a second polarization component output from the light source and reflected by the magneto-optical crystal.