

CLAIMS

1. An inspection system comprising:

5 an inspection lighting device configured to irradiate inspection light onto an inspection object, the inspection lighting device being able to be set such that an irradiation solid angle of the inspection light irradiated onto each point on the inspection object has a plurality of solid angle regions having different optical attributes, the plurality of solid angle regions being radially arranged around an
10 optical axis of the irradiation solid angle and being adjacent to each other in a circumferential direction; and

an imaging device configured to image object light reflected, transmitted, or scattered by each point on the inspection object, the imaging device being capable of selectively imaging different optical attributes of the object light,

15 wherein the inspection system can specify three-dimensional characteristics of a surface of the inspection object by detecting, at each point on the inspection object, a change in an optical axis of the object light, or a change in a solid angle of the object light relative to an observation solid angle that is formed at that point on the inspection object by the imaging device, in an inclusive
20 relation with the observation solid angle, as changes in the object light having the plurality of optical attributes resulting from the plurality of solid angle regions of the inspection light, and specifying incline directions and incline angles of inclines in a plurality of directions at each point on the inspection object based on the amounts of the changes in the object light detected respectively with respect to the
25 plurality of optical attributes.

2. The inspection system according to claim 1, further comprising:

a half mirror configured to change an irradiation direction of the inspection light and to transmit light from the inspection object so that the light can be
30 imaged by the imaging device,

wherein optical axes of the solid angle regions of the irradiation solid angle of the inspection light at each point on the inspection object substantially coincide with an optical axis of the observation solid angle of the imaging device at that point on the inspection object.

5

3. The inspection system according to claim 1 or 2,

wherein, in the irradiation solid angle of the inspection light irradiated onto the inspection object by the inspection lighting device, based on a shape, size, and incline of the observation solid angle of the imaging device at each point on the inspection object, shapes, sizes, and inclines of the solid angle regions at that point on the inspection object are set to be suitable to obtain desired gradation information, or the shapes, sizes, and inclines of the solid angle regions and the observation solid angle are set to be substantially uniform relative to each other.

15 4. The inspection system according to claim 1,

wherein the observation solid angle at each point on the inspection object is set to be smaller than the irradiation solid angle, and in order that, when the incline of the optical axis of the object light returned from each point on the inspection object changes, the change can be detected as changes in the object light having the plurality of optical attributes, the plurality of solid angle regions that are formed within the irradiation solid angle and that have different optical attributes substantially continuously change from one to another.

5. A method of inspection,

25 wherein a three-dimensional shape of the inspection object is specified based on changes in the plurality of optical attributes of the object light using the inspection system according to any one of claims 1 to 4.