1. A thickness measuring system comprising:

a camera positioned above a center of a semiconductor structure to capture light reflected by the semiconductor structure;

at least one light source providing incoherent, uncollimated light; and

a controller including a processor and a memory, the controller operatively coupled to the camera and the at least one light source, the memory including instructions that when executed by the processor cause the controller to:

illuminate the semiconductor structure with the incoherent, uncollimated light from the at least one light source;

cause the camera to capture at least one image of the semiconductor structure illuminated by the light from the light source, the at least one image including separate first color, second color, and third color images, the first, second, and third colors being different from each other; and

produce thickness maps for at least two layers of the semiconductor structure based on the first color, second color, and third color images and reference first color,

second color, and third color images of a reference silicon wafer, the thickness maps based in part on ratios of light intensity of the first color, second color, and third color images of the semiconductor structure and light intensity of the reference first color, second color, and third color images of the reference silicon wafer, and wherein the instructions cause the controller to produce the thickness maps in part by:

determining a first semiconductor structure ratio of the light intensity of the first color image of the semiconductor structure to the light intensity of the third color image of the semiconductor structure;

determining a second semiconductor structure ratio of the light intensity of the second color image of the semiconductor structure to the light intensity of the third color image of the semiconductor structure;

determining a first reference ratio of the light intensity of the first color image of the reference silicon wafer to the light intensity of the third color image of the reference silicon wafer; and

determining a second reference ratio of the light intensity of the second color image of the reference silicon wafer to the light intensity of the third color image of the reference silicon wafer.

2. The thickness measuring system of claim 1, wherein the instructions cause the controller to produce the thickness maps in part by:

determining a first resulting ratio by dividing the first semiconductor structure ratio by the first reference ratio; and

determining a second resulting ratio by dividing the second semiconductor structure ratio by the second reference ratio.

3. The thickness measuring system of claim 1, wherein the instructions cause the controller to calculate an average thickness of each layer and calculate final thickness maps for each layer as first order deviation maps from the average thickness of that layer.

4. The thickness measuring system of claim 1, wherein the instructions cause the controller to correct the thickness maps for angle distortion caused by the camera being positioned relatively close to the semiconductor structure and collimation optics not being used.

5. The thickness measuring system of claim 1, wherein the semiconductor structure comprises a silicon on insulator (SOI) structure, and the at least two layers comprise an SOI layer and a buried oxide (BOX) layer.

6. The thickness measuring system of claim 1, wherein the first color is red, the second color is green, and the third color is blue.

7. The thickness measuring system of claim 6, wherein the camera comprises a red, green, and blue (RGB) camera.

8. The thickness measuring system of claim 6, wherein the at least one light source comprises a red, green, and blue (RGB) light emitting diode (LED) light.

9. A method of measuring a thickness of a semiconductor structure comprising:

illuminating the semiconductor structure with the incoherent, uncollimated light from at least one light source;

capturing, using a camera, at least one image of the semiconductor structure illuminated by the light from the light source, the at least one image including separate first color, second color, and third color images, the first, second, and third colors being different from each other; and

producing thickness maps for at least two layers of the semiconductor structure based on the first color, second color, and third color images and reference first color, second color, and third color images of a reference silicon

wafer, wherein producing the thickness maps includes producing the thickness maps based in part on ratios of light intensity of the first color, second color, and third color images of the semiconductor structure and light intensity of the reference first color, second color, and third color images of the reference silicon wafer, and producing the thickness maps includes:

determining a first semiconductor structure ratio of the light intensity of the first color image of the semiconductor structure to the light intensity of the third color image of the semiconductor structure;

determining a second semiconductor structure ratio of the light intensity of the second color image of the semiconductor structure to the light intensity of the third color image of the semiconductor structure;

determining a first reference ratio of the light intensity of the first color image of the reference silicon wafer to the light intensity of the third color image of the reference silicon wafer; and

determining a second reference ratio of the light intensity of the second color image of the reference silicon wafer to the light intensity of the third color image of the reference silicon wafer.

10. The method of claim 9, wherein producing the thickness maps includes:

determining a first resulting ratio by dividing the first semiconductor structure ratio by the first reference ratio;

determining a second resulting ratio by dividing the second semiconductor structure ratio by the second reference ratio; and

producing the thickness maps based on the first resulting ratio and the second resulting ratio.

11. The method of claim 9, wherein producing the thickness maps includes calculating an average thickness of each layer and calculating final thickness maps for each layer as first order deviation maps from the average thickness of that layer.

12. The method of claim 11, wherein calculating final thickness maps for each layer as first order deviation maps from the average thickness of that layer is performed using $\binom{SOI}{BOX} = \binom{\Delta SOI}{\Delta BOX} + \binom{\overline{SOI}}{\overline{BOX}}$.

13. The method of claim 11, wherein

$$\binom{SOI}{BOX} = \binom{\Delta SOI}{\Delta BOX} + \binom{\overline{SOI}}{\overline{BOX}} = \mathfrak{M}^{-1}\binom{\Delta r_{GR}}{\Delta r_{BR}} + \binom{\overline{SOI}}{\overline{BOX}}$$

with

$$\mathfrak{M} = \begin{pmatrix} \frac{\partial r_{GR}}{\partial SOI} & \frac{\partial r_{GR}}{\partial BOX} \\ \frac{\partial r_{BR}}{\partial SOI} & \frac{\partial r_{BR}}{\partial BOX} \end{pmatrix}.$$

14. The method of claim 9, further comprising correcting the thickness maps for angle distortion caused by the camera being positioned relatively close to the semiconductor structure and collimation optics not being used.

15. The method of claim 14, wherein a correcting the thickness maps is performed using

$$THK_{corrected}(x,y) = THK(x,y)\sqrt{1 - \frac{n_{Air}}{n_{Layer}}\frac{x^2+y^2}{{z_{lens}}^2}}.$$

16. The method of claim 9, wherein the semiconductor structure comprises a silicon on insulator (SOI) structure, and the at least two layers comprise an SOI layer and a buried oxide (BOX) layer.