Complex division as a common basis for calculating phase differences in electronic speckle pattern interferometry in one step

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We point out that all formulas for calculating the phase map of object deformations in one step can be described by the same simple formalism of a complex division. © 1998 Optical Society of America

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When one is measuring deformations of objects by electronic speckle pattern interferometry, the result of the calculation of the phase map can be obtained in various ways. For more information: Heinz.Helmers@uni-oldenburg.de

The composite formula for one-step calculation of the phase difference with the four-step algorithm is

$$\Delta\varphi = \arctan\left(\frac{\Delta I_{42} \Delta I_{13} - \Delta I_{42} \Delta I_{13}}{\Delta I_{13} \Delta I_{13} + \Delta I_{42} \Delta I_{42}}\right).$$

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