

Method for imaging or spectroscopy with a non-linear interferometer

ABSTRACT

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It is claimed a method for imaging and/or spectroscopy comprising the steps

i) generation of a first signal field and a first idler field, by pumping a first non-linear medium, such that the two fields are correlated,

ii) illumination of the object with the first idler field,

10 iii) generation of second signal field and a second idler field, by pumping a first non-linear medium, such that the two fields are correlated,

iv) combination of the first and second idler fields, such that the two fields are indistinguishable, and a combination of the first and second signal fields, such that the two fields interfere,

15 v) first measurement of the interfered signal field by a detection means,

vi) one or more additional measurements of the interfered signal field, wherein for each additional measurement in step vi) a different phase shift α is generated in the setup, and wherein all measurements are carried out within the stability time of the setup,

20 vii) calculation of the phase function Φ .

(Fig. 1)