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(71) Applicant: **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG).

(72) Inventors: **CHANG, Taeyong**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **SO, Jinkyu**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **ADAMO, Giorgio**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **CHAN, Eng Aik**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **ZHELUDEV, Nikolay Ivanovich**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG).

(74) Agent: **VIERING, JENTSCHURA & PARTNER LLP**; P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).

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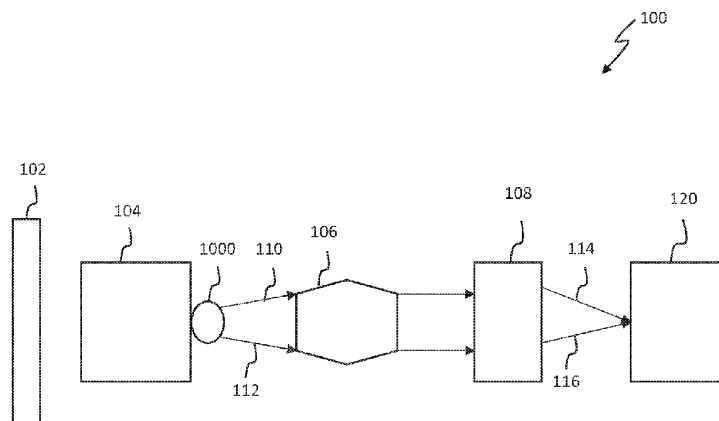


FIG. 1

(57) Abstract: Aspects concern a label-free far-field optical microscopy system comprising: an illumination source configured to generate an incident light beam for illuminating a specimen; a sample platform arranged to support the specimen and produce total internal reflection of the incident light beam passing therethrough; an objective lens positioned to allow a plurality of optical signals from the specimen to pass therethrough; a spatial light modulator positioned along a back focal plane of the objective lens, the spatial light modulator configured to receive the plurality of optical signals, the plurality of optical signals comprising a first optical signal and a second optical signal, and generate corresponding modulated first optical signal and modulated second optical signal; and a detector configured to sequentially receive the modulated first optical signal and modulated second optical signal; wherein the detector comprises at least one processor configured to, based on a basis function, process the first modulated optical signal and second modulated optical signal to determine a first complex coefficient and a second complex coefficient for the expansion of far-field radiation pattern.

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