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(71) Applicant: **MASSACHUSETTS INSTITUTE OF TECHNOLOGY** [US/US]; 77 Massachusetts Avenue, Cambridge, MA 02139 (US).

(72) Inventors: **MONTOYA, Juan**; 231 Orchard Street, Belmont, MA 02478 (US). **RIPIN, Daniel**; 73 Mann Avenue, Needham, MA 02492 (US). **ALESHIRE, Christopher**; 2522 Massachusetts Avenue, Lexington, MA 02421 (US). **MARTZ, Dale**; 29 Medford Street, Unit #2, Medford, MA 02155 (US). **REEVES-HALL, Peter, Colin**; 255 Olivia Drive, Northbridge, MA 01534 (US).

(74) Agent: **SOLOMON, Mark, B.** et al.; Hamilton, Brook, Smith & Reynolds, P.C., 530 Virginia Rd., P.O. Box 9133, Concord, MA 01742-9133 (US).

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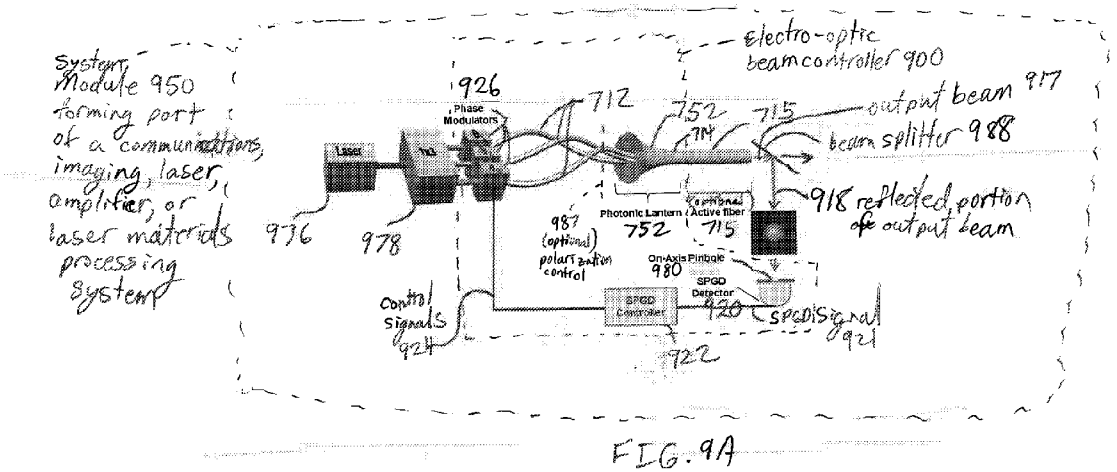


FIG. 9A

(57) Abstract: An electro-optic beam controller, material processing apparatus, or optical amplifier, and corresponding methods, can include an actively controlled, waveguide-based, optical spatial mode conversion device. The conversion device can include a coupler, which can be a photonic lantern, configured to combine light beams into a common light beam; a sensor configured to measure at least one characteristic of the common light beam; and a controller configured to modulate optical parameters of the individual, respective light beams to set one or more spatial modes of the common light beam. Actively controlled and modulated devices can be used to maintain a stable, diffraction-limited beam for use in an amplification, communications, imaging, laser radar, switching, or laser material processing system. Embodiments can also be used to maintain a fundamental or other spatial mode in an optical fiber even while scaling to kilowatt power.

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G02F G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Verbandt, Yves

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