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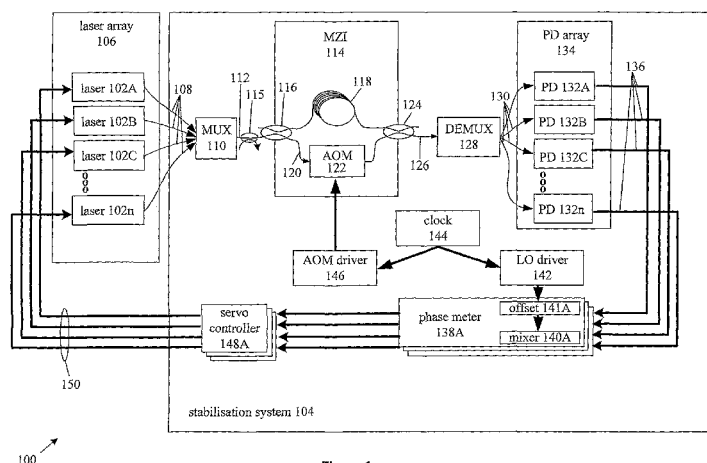


Figure 1

(57) **Abstract:** A system and method for stabilising a plurality of output frequencies (wavelengths) of a plurality of lasers (106). The laser beams are combined using optical multiplexer (110) and coupled into length-imbalanced (armlength-mismatched) Mach-Zehnder interferometer (MZI) (114) having an optical modulator (e.g. AOM) (122) in one of its arms. The output of the MZI is divided into corresponding beams via optical demultiplexer (128) and each beam is detected by a respective photo-diode (PD) (134). The individual electric signals, so generated, are demodulated using a corresponding plurality of phase-responsive devices (138) and the resulting phase-signals are directed to a plurality of servo-controllers (148) to control the central frequency of the respective lasers (106) via a corresponding plurality of feedback loop circuits (150). The lasers (106) can have different central frequencies which can also be individually tuned using offset modules (141) in the phase-responsive devices (138).