

ABSTRACT

OPTICAL APPARATUS

An optical apparatus comprising:

a first optical coupling means having a first and a second pair of optical communication ports in which substantially equal portions of an optical signal received at a port of one pair of ports are coupled to each port of the other pair of ports;

an optical waveguide means optically coupling the second pair of ports such that an optical signal leaving either one of the second pair of ports in a first polarization state arrives at the other in a second polarization state substantially orthogonal to the first polarization state;

a second optical coupling means for coupling an optical signal at a second wavelength to the optical waveguide so as to propagate along at least a portion of it in one direction only; and

a first and second polarizing beam splitters optically coupled to a respective one of the first pair of ports.