

VIA. OPTICAL AND INFRARED MASERS

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RESEARCH OBJECTIVES

This research program on optical and infrared masers is a broad and continuing investigation of the more fundamental aspects of masers and their utilization for physical experiments. The immediate objectives can be described as continuation and completion of a number of experiments launched last year on the applications of masers to spectroscopy and to precision measurements of physical quantities. These include a precise determination of an upper limit to the "ether drift," a modern form of the Michelson and Morley experiment. The spectrum of an optical maser oscillator will be studied further, as will standards of length. For the latter purpose, several new approaches in which an atomic beam is used for the active optical medium will be pursued. We plan to emphasize the generation of a monochromatic source of light in the far infrared, using maser and parametric techniques. The application of such a source of light to far infrared spectroscopy, and of infrared masers to spectroscopic studies, will also be investigated.

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