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Design for a New Observatory for the Optical Search for Extraterrestrial Intelligence CORBIN COVAULT, Department of Physics and Center for Research and Education in Cosmology and Astrophysics, Case Western Reserve University — For decades scientists have searched the skies for signals from extraterrestrial civilizations using large radio telescopes. However, researchers have recently considered the possibility that signals sent at optical wavelengths may be a more promising means of interstellar communications. Such signals may be sent in the form of very rapid (ns) light pulses generated by large lasers. In principle, optical telescopes equipped with high-speed light sensors can be used to detect such signals. Already, several groups have initiated preliminary search efforts. Here we describe the design for a new observatory to search for optical signals from extraterrestrial sources. Our design is relatively inexpensive to build, and observations can be conducted remotely by students. We use a set of four individual telescopes to scan the sky as it moves overhead. Each telescope includes a large area Fresnel lens and an array of photo-multiplier tubes. The four telescopes will be operated in coincidence so as to minimize the chance of recording false signals due to background light fluctuations. Preliminary performance estimates suggest that this design will allow for the most sensitive optical searches done to date. Deployment and initial observations are scheduled to begin Summer 2012.

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