LA-UR-15-28794
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Title:	Los Alamos National Security, LLC Request for Information from industrial entities that desire to commercialize Laboratory-developed Extremely Low Resource Optical Identifier (ELROI) tech
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Intended for:	Request for Information Web
Issued:	2015-11-10

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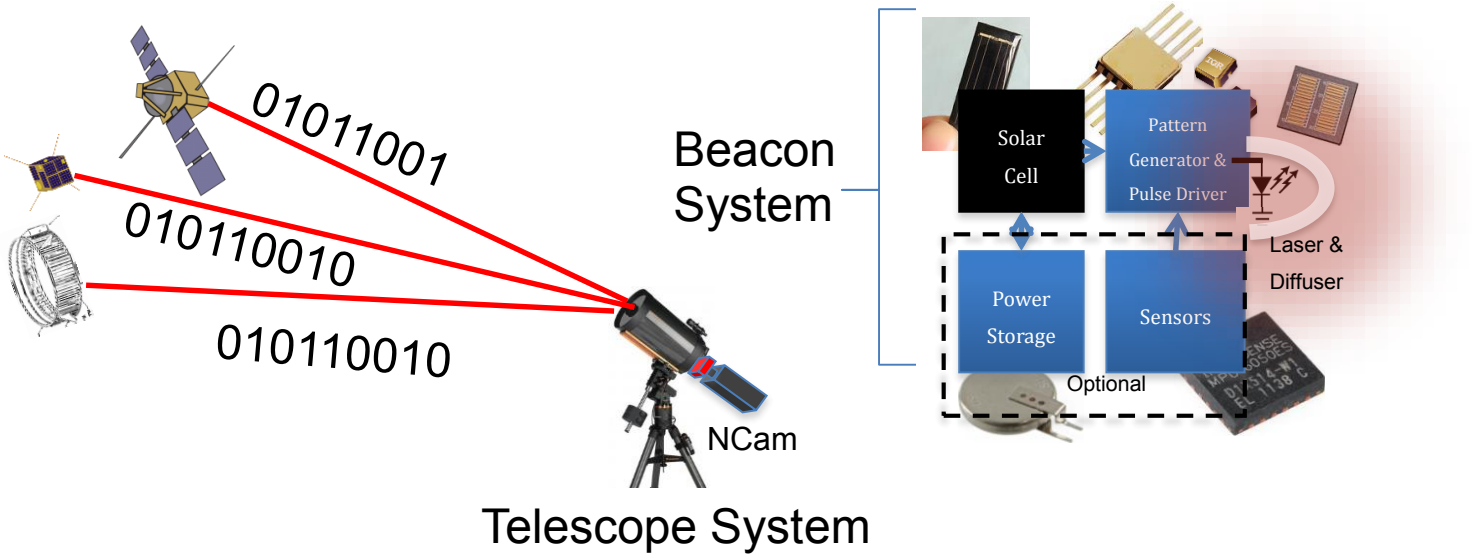

Los Alamos National Security, LLC (LANS) is the manager and operator of the Los Alamos National Laboratory for the U.S. Department of Energy National Nuclear Security Administration under contract DE-AC52-06NA25396. LANS is a mission-centric Federally Funded Research and Development Center focused on solving the most critical national security challenges through science and engineering for both government and private customers.

A License Plate for Your Satellites

Los Alamos has developed the Extremely Low Resource Optical Identifier (ELROI), a cost effective, robust means of tracking satellites and other objects in space. The LANS ELROI is a unique system for identification, tracking and diagnosis of space objects. ELROI consists both of a laser beacon and a telescope system to track space objects.

The unobtrusive beacon is self-powered, requires no data/commands, emits no RF signal, and can be easily attached to a spacecraft. For a system attached to a LEO satellite, the beacon could be packaged in a volume of a few cubic centimeters weighing a few grams. Think of it as a thick postage stamp that can be glued or bolted to a satellite at any point in its manufacture or launch preparations.

The beacon produces an extremely low power optical signal that transmits identification from orbit to ground. The transmission is omnidirectional so the beacon requires no pointing system. The autonomy of the beacon allows it to be used on both passive debris and active spacecraft, and continue to operate after the spacecraft is decommissioned.

The space vehicle or non-vehicle object is identified through a unique code, or license plate, emitted by the beacon. In addition to the identification code, optional information can be included in the beacon signal. This might include data from sensors internal to the beacon package, such as shock sensors to detect debris impacts or (with more spacecraft integration) state-of-health indicators from the spacecraft. This can provide forensic analysis of spacecraft anomalies and enable recovery of operations.

A unique LANS ground receiver enables this concept. It is composed of a small telescope with LANS's NCam technology, a high-speed photon counting camera that significantly reduces cost over more complex optical telescopes. This modest optical system can identify a specific optical signal with very little power by using a narrow wavelength filter and processing gain. A 0.25 milliwatt signal from low earth orbit can be identified in 100 seconds of observation, even on a background of a 1 square meter satellite in full sunlight.

LANS is opening this formal Request for Information to private industry to gauge the level of interest in engaging as a commercial partner to LANS under a non-exclusive license agreement. This offering is made without prejudice to any form of collaborative arrangement, alliance, or number of entities. Those companies interested in pursuing this opportunity should direct a Letter of Interest, as well as any comments or questions, to the undersigned on or before 11:59 MDT on Friday, December 11th, 2015.

Below you will find (1) a listing of LANS Intellectual Property (IP), and (2) certain partner attributes that LANS prefers. Please properly mark any information that is considered proprietary or business-sensitive. LANS will supply a Non-Disclosure Agreement to any U.S. company or person that requires it.

LANS INTELLECTUAL PROPERTY

Patent Application:

Extremely Low Resource Optical Identifier (ELROI)

- S-133,315: Optical Identification Beacon

Please note that the U.S. Government retains a worldwide, royalty-free, non-exclusive right to practice any LANS-owned patents and/or copyrighted software. Accordingly, any and all partners will have open access to any LANS patents and copyrights in performance of a Government contract.

PREFERRED PARTNER ATTRIBUTES

- Ability and/or desire to fabricate and assemble the ELROI system to the satisfaction of government and non-government customers
- Can deploy ELROI for multiple needs in the defense and aerospace industry
- One or more U.S. persons with whom LANS personnel may interact
- Ability and willingness to ensure compliance with US Export Control law is a requirement

The foregoing are negotiable preferences; LANS welcomes all Letters of Interest from any suitable party.

WHAT WE ARE REQUESTING

Please submit a written response on whether your organization desires to use this technology in partnership with Los Alamos on a non-exclusive basis. Please respond by email to space@lanl.gov, or call Michael Erickson directly at (505) 667-8087 by December 11th, 2015.