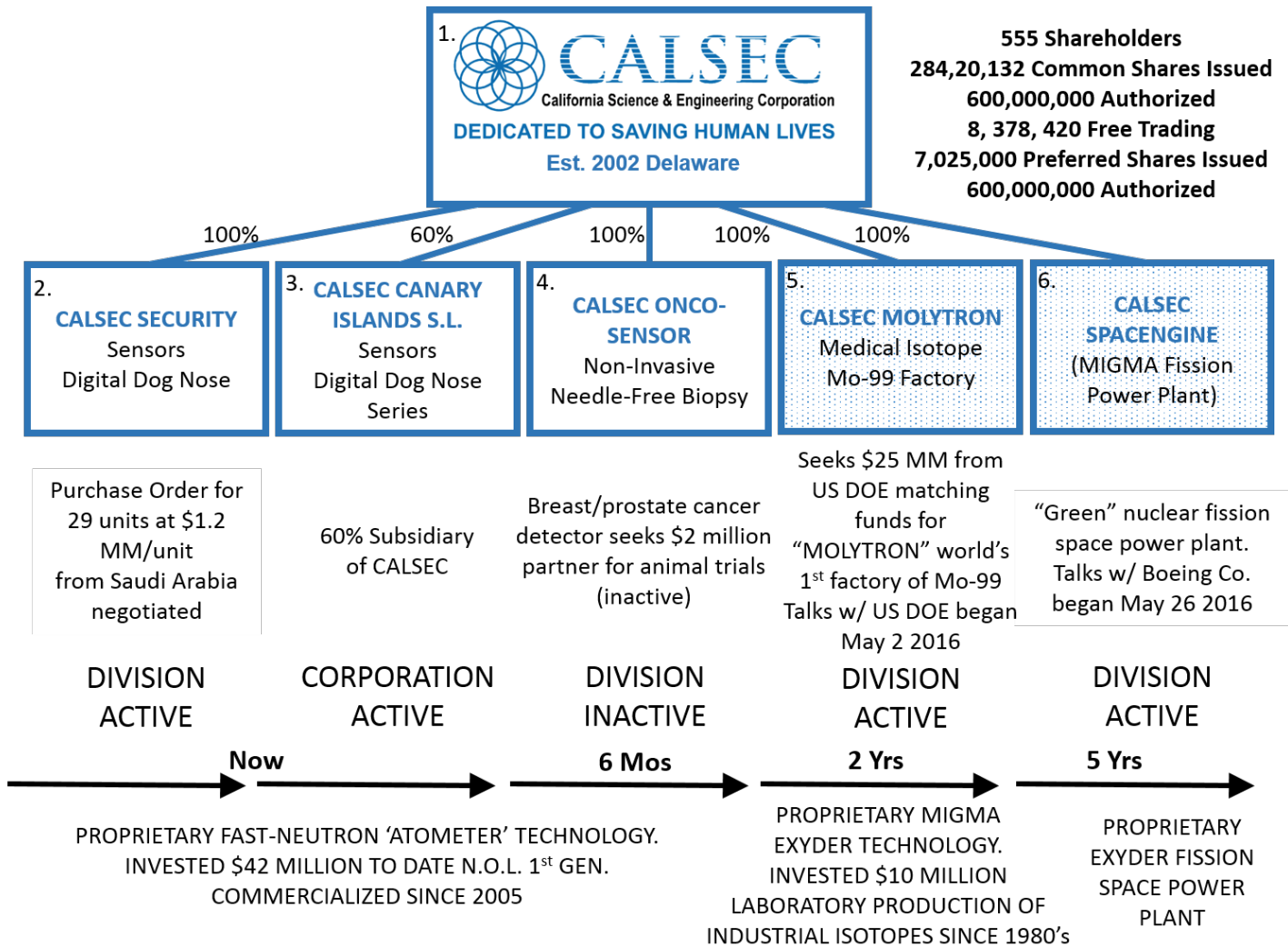


- **Atometry** – Stand-off Bomb detector; Non-invasive Cancer Detector
- **MIGMA Exyder Reactor** - Med Isotope Plant; MIGMA Fission Spacengine



**Business Description**

California Science & Engineering Corporation (CALSEC) leads an R&D consortium of universities and technology partners to leverage the Company's scientific knowhow and intellectual properties to incrementally advance and commercialize the science of stand-off sub-nano technology for security and medicine. Over \$40,000,000 in tax loss carry-forwards. Strong management and world class scientists.

There is currently no market for the common stock. We intend to file a registration statement with the SEC in July 2016, and upon its effectiveness we will be a fully-reporting company and our stock can be quoted on the OTCQB marketplace (www.otcmarkets.com).

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**Special Advisors to Chairman:**

**Dr. Buzz Aldrin**, Astronaut Apollo 11  
**Dr. Sheldon Glashow**, Nobel Laureate Physicist  
**Monty Houdeshell**, Corporate

**Key Personnel / Directors**

**Jack Teberg**, Director, Honorary President  
**Yang Li**, Director  
**Julian Eguizabal**, President CALSEC Canary Islands

**Advisors**

**Sharad Bansal**, PIMCO, Finances  
**General Mark Kimmitt**, US Army, ret Fmr. Ass. Sec. of State  
**Admiral Donald Loren**, US Navy, ret Fmr. Ass. Sec. of Defense  
**Dr. George Miller**, Nuclear Reactor University of California, Irvine  
**Dr. James Earthman**, Professor, Department of Chemical Engineering, UC Irvine

**Technology Partners**

**University of California, Irvine**, Nuclear Reactor Facility  
**Purdue University**, Neutron Facility  
**Kansas State University**, Nuclear Engineering Center  
**Western Kentucky University** Neutron Facility  
**Institute of Astrophysics**, Tenerife, Spain  
**NSD Fusion SA**, Luxembourg, EU  
**Means Engineering**, California

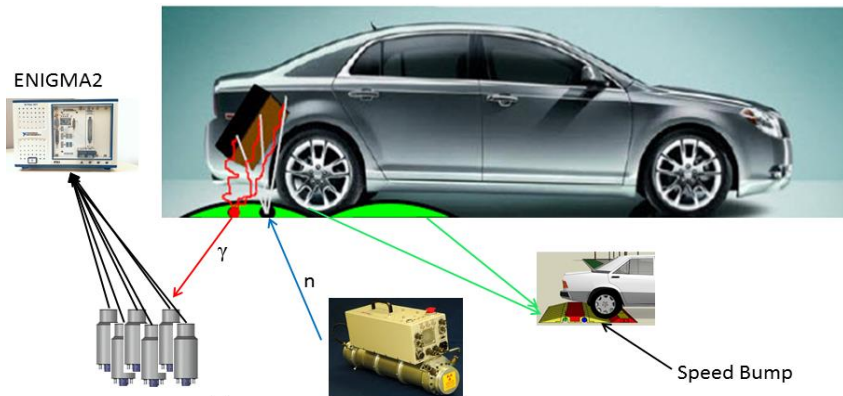
## ATOMETRY Technology

### PRODUCT 1: "DIGITAL DOG NOSE"<sup>TM</sup>, the "Ferrari" of bomb detectors.

CALSEC is in the process of negotiating the sale to Saudi Arabia of 29 units of its unique stand-off IED detector, GIX-703 the only technology in existence that can chemically tell explosive from common substance remotely, noninvasively and online and with a certainty of 97%.

General Public is unaware that X-rays and MRI are **chemically blind**. None of the 500,000 odd "Explosive Detection Systems" at 6,000 odd world airports have ever detected an explosive within the past 40 years without manually examining suspicious objects; it is low-tech. Atometry is *unique* as the first sub-nanotechnology, for it operates on a million times shorter wave-lengths than nanotech, and can decode chemical formula of any material by remotely measuring number of atoms ("femto" is a million times smaller than "nano").

**1<sup>st</sup> generation** Atometers, developed at a cost of **\$44 million** in the period 2000-5, have proven to provide 97-100% accurate, stand-off detection in field tests conducted by the US Army, US Navy, US Marines, the FBI, NATO and other and foreign Law Enforcement agencies for detection of



landmines, IEDs (Improvised Explosive Devices), drugs (Cocaine) and bio agents (incl. anthrax). Nevertheless, early sensors were too slow and heavy for commercial success. Moreover, the technology was under DOD Secrecy Order since 9/11, until recently.

Speed bump borne car bomb detector Global IED Xterminator GIX-703. As the vehicle drives over speedbump it is scanned by neutron rays that chemically identify explosive in 1 sec.

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**2<sup>nd</sup> generation** of atometers, Global IED Xterminator GIX-702 concealed in speed bump, was developed jointly by CALSEC and HITACHI in 2013 (photo over) at a cost of c. \$10 million; GIX is 100 times faster than 1<sup>st</sup> generation. Since no

commercial computer can digest such ultra-high data rates, single purpose computer, ENIGMA2, has been developed by CALSEC and built by National Instruments.

**3<sup>rd</sup> generation** (2016) GIX-703, is 10 times faster than 2<sup>nd</sup> gen – from 10 mins to 1 second. US Dep. of State ruled that GIX does **not** require export license for most countries.

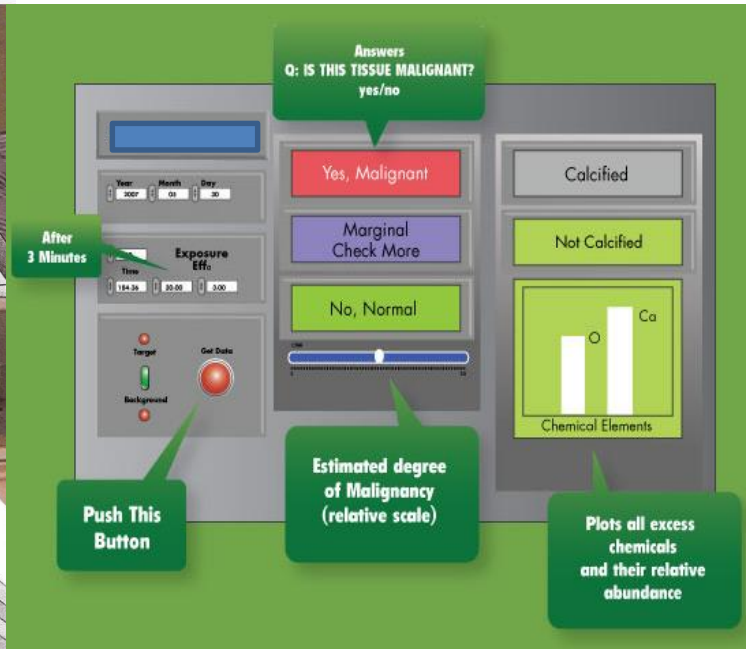


HITACHI's Engineering Team at Irvine, California, developing world's fastest gamma detectors guided by its inventor Dr. Maglich (left) : Dr. K. Kobashi, Dr. K. Okhoi, Y. Ohgi, I. Yoshida.

**ATOMETRY Technology**

**PRODUCT 2: ONCOSENSOR – non-invasive cancer detector.** CALSEC has invented and patented a needle-less biopsy diagnostic system, the OncoSensor™. The R & D for the basic sensor design took place in the period of 2006 to 2009, having been further augmented since by 4 additional patents, patent applications and works in progress authored or co-authored by Dr. Maglich and collaborators. OncoSensor's *Scientific Basis*: the OncoSensor is capable of performing a needle-free biopsy because it can measure the prevalence of oxygen in tumors. Malignant cells contain from between 96% to 48% **less** oxygen (depending on organ type) than non-malignant cells. Moreover, OncoSensor™ can reach many types of malignancies that cannot be safely biopsied due to tumors' location (brain, pancreas, liver). Adoption of OncoSensor will provide significant quality of medical care and cost improvements over existing diagnostic procedures.

<b>OncoSensor</b>	<b>versus</b>	<b>Needle Biopsy</b>
No anesthesia		Anesthesia
No infection		Infection Risk
No metastasis		Metastasis Risk
No waiting, results in minutes		Multi-day wait for results
Reimbursement target of \$200/\$300		Reimbursement target of greater than \$500





### **MIGMA EXYDER Technology**

**PRODUCT 1:** World's 1st manufacturing plant of medical isotope Mo-99. Current price: \$50,000,000 per gram. Capital Requirement: \$25,000,000 to match US Gov. committed funds of \$25, 000,000.

CALSEC seeks partner to provide matching funds for the construction of "Molytron," a production plant of the "workhorse" medical isotope Molybdenum-99, Mo-99, which is used in 80% of all medical procedures globally. A 50% of the project cost, up to \$25 million, will be provided by DOE's National Nuclear Security Administration (NNSA) under Act of Congress. Participation of start-up companies is encouraged. CALSEC seeks seed funds from Bill and Melinda Gates Foundation dedicated to global healthcare.

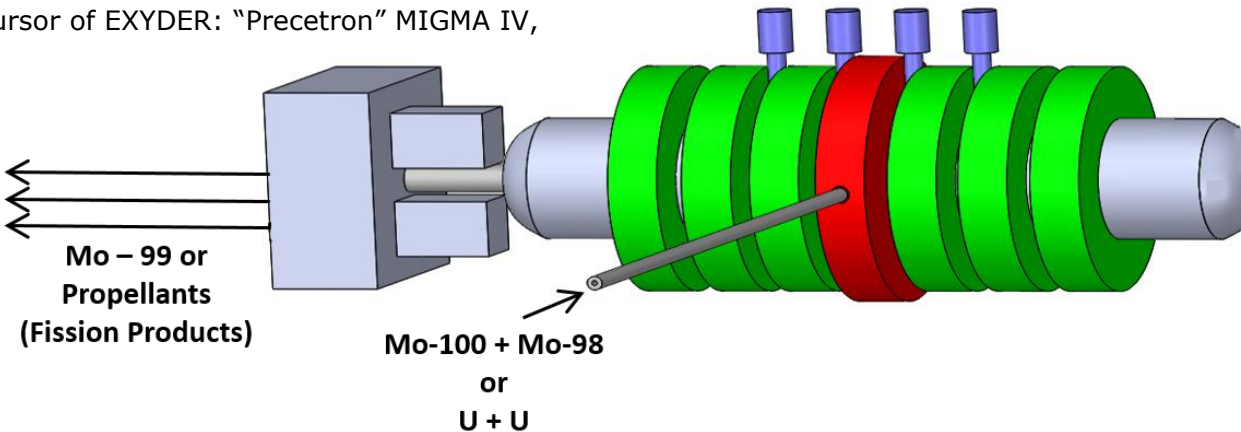
Mo-99, whose half-life of is 3 days, is a billion dollar market with 10% annual growth. It is used in 40,000,000 med procedures/yr, one- half of it in the USA, 1 g, is used per million procedures i.e. 40 g /yr. Ultimate consumption is projected to be 1 Kg/yr.

Mo-99, is made in nuclear research reactors from nuclear weapon fuel uranium-235 which presents grave nuclear proliferation danger. All Mo-99 producing reactors in the USA are shut down; Mo-99 is imported from Canada, Holland and Poland.

Dr. Maglich and team have pioneered in the past the precursor of Molytron, a patented functional isotope manufacturing plant MIGMA, (photo - previous page). Mo-99 would be produced at 5% of current cost from natural non-radioactive molybdenum ore, open-pit mined in Colorado and Nevada Molytron design was presented to NNSA at two Mo-99 topical conferences, in Washington (Nov. 11, 2015). Molytron is projected to supply Mo-99 to global healthcare at a cost of \$1 per procedure.

**Functional design of Molytron (below) illustrates that input of natural isotopes of Mo-98 and Mo-100 into center chamber results in output of Mo-99 exiting on left.**

Precursor of EXYDER: "Precetron" MIGMA IV,



### **MIGMA EXYDER Technology**

#### **PRODUCT 2. MIGMA FISSION SPACENGINE**

If - instead of Mo-98 and Mo-100 - we inject the ordinary benign non-weapon U-238 into EXYDER, we will ignite "green" nuclear fission reactor with no bomb fuel, no plutonium, no heat pollution, no steam but only an electric energy flow of massive charged particles, called 'fission fragments,' which can serve dual purpose: direct conversion of nuclear energy into electricity and/or direct propellant for a space rocket. Opposed to conventional reactors (metal tubes filled with radioactive waste), this energy release process takes place in vacuum and is magnetically levitated and automatically ejected without touching the walls. Fast neutrons continue the energy producing fission process unimpeded in MIGMA, rather than traveling through water which slows them down, and leading to plutonium production, the weapon fuel that cannot be produced by fast neutrons.