

Introductory Profile 2010

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D&I has a strong and experienced Board and Management team that have engaged industry based associates and consultants to successfully complete the first 18 months of operations. D&I have independently manufactured, tested and validated the Inventor's claims and produced a technical dossier for industry review. Feedback has endorsed that the technology has significant potential in medical therapeutic and dosimetry applications. A poster presentation on D&I technology at the recent Health Physics Society meeting in USA attracted significant interest from both academic and commercial parties. One potential commercial partner has requested a tech transfer subject to a Letter of Intent to fully evaluate the specific applications for their target markets.

The Company

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The next stage of development for which D&I seek further investor support is to generate pre-production products in:

Personal Dosimetry – on site measurement & homeland security (Proof of Concept and product development to pre production)-Medical Radiotherapy dosimeter (POC & PD to pre production)
Imaging products – CR plate (POC).

The Market & Opportunity

A detailed market analysis (internal and independent) has confirmed three target markets for D&I technology: **1. Personal dosimetry – on site & homeland security** (Badges and reader) **2. Medical radiotherapy** and **3. Imaging – Xray**

(Phosphor imaging plates for computed radiography). Mirion and other commercial consultants support the market opportunities listed for dosimetry applications.

1) PERSONAL DOSIMETRY: Detecting radiation exposure using personal dosimetry devices is a major global market estimated to exceed \$500 million USD (CAGR 7-10%) pa in product and services. The two major segments are:

- ✓ **Centralised monitoring** personal dosimetry in nuclear plants, research and medical facilities where badges are collected and returned to a central facility for analysis. This is the industry standard and dominated globally by two major players: Landauer (NYSE) and Mirion Technologies (Nasdaq- CASA). This segment is not a short term target due to the regulatory complexities for a new entrant. However over time with OEL benefits we would expect OEL to enter this market.
- ✓ **On-site monitoring** personal dosimetry conducted within certain facilities (ie military and some nuclear plants; research facilities and hospitals requiring daily readouts) or in the field (military and civilians who may be exposed to nuclear attack or radiation from accidental release).

Current technologies have several limitations that are impeding on site measurement or mass deployment of dosimetry badges. The Department of Health and Human Services (HHS) – (USA Federal Government) has confirmed the need for this technology in a recent solicitation for R&D funding. This area is also a priority for military applications and we are in discussion with local and overseas military organisations.

2) MEDICAL RADIOTHERAPY: D&I is also targeting medical radiotherapy applications to give radiologists a record of exposure during medical radiotherapy or imaging. This is an emerging market .Three technologies include: Mosfets; diodes and phosphor compounds. D&I has significant advantages over all existing technologies. This includes small size; permanent data record, implantable or surface locations, no wiring and cost effective on site measurement of dose rate. Subject to successful completion of our proof of concept project, it may be possible that every hospital could conduct cost effective radiation exposure using OEL technology.

- 3) **IMAGING** The current limitation of phosphor technology in computed radiography (CR) versus semiconductor digital radiography (DR) is that image clarity requires a higher dose (approximately 1.5 to 2 times DR). The characteristics of OEL suggest it may match or exceed DR image quality with a similar or much lower dose rate for the same resolution. Proof of this would present a large market opportunity for D&I as mammography and soft tissue radiography require the best resolution for the lowest dose. Currently 64% of the world market has yet to convert to digital. Imaging is subject to a Department of State and Regional Development Proof of Concept Grant which is currently in progress. The objective is to provide POC for industry or other collaboration later this year. Good progress has been made and we expect to engage industry collaborators in 2010.

The Competitive Advantage of D&I

D&I proprietary technology (Optically Excited Luminescence –OEL) offers a breakthrough in these markets versus current competition because:

- ✓ When D&I badges are **read the process is non destructive** and therefore you can do cumulative reads or read in real time. This means that you can read radiation exposure every day or as frequently as required and the result will give a cumulative reading. Our only competitor has limited capability in this area with a read fade on repeated measurement. This feature is ideal for situations requiring repeated measurement for validation of dose (military/civilian) or medical radiotherapists who require in vivo Dosimetry validation of dose. The International Atomic Energy commission has recently indicated smart card technologies for patients undergoing repeated exposure to radiation¹.
- ✓ **The reader technology can be simplified** to a low cost self indicating wearable badge. We believe no other technology can compete on this basis which means it becomes possible to cost effectively mass deploy badges to the military and civilians. Furthermore, every reading can be re read without destroying the stored information which is vital in secondary confirmation of received dose.
- ✓ **The OEL phosphor is very sensitive** to radiation and the nature of the material makes it feasible to get high resolution images (ie Xray) at low doses. This is critical in soft tissue Xray where dose rates need to be minimised to prevent tissue damage (ie: mammography, lung, kidney and head and neck exposure).

¹ <http://www.medicalnewstoday.com/articles/148311.php>

OEL Products & Technology

PRINCIPLES OF OPERATIONS

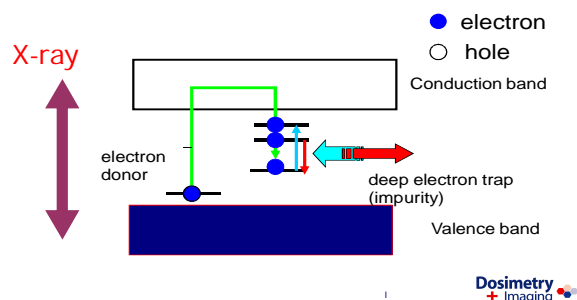
Dosimetry & Imaging's technology is based on the proprietary Optically Excited Luminescent (OEL) technology which consists of a radiation sensitive compound and a laboratory analyser. This technology is used for the detection and measurement of ionizing radiation such as X-Rays and gamma radiation from radioactive material. All aspects have been independently validated demonstrating its key performance characteristics - high sensitivity, wide dynamic range and data

stability. The bench top production of the compound is very repeatable as is the third generation analyser.

The compound was initially targeted for personal dosimetry (a badge worn by staff in radiation facilities to monitor exposure, eg hospital X-Ray department) but has a range of applications including population monitoring (first responders; military and civilians) as well as medical radiotherapy and imaging.

RESPONSE TO RADIATION OF THE PHOTOLUMINESCENT COMPOUND

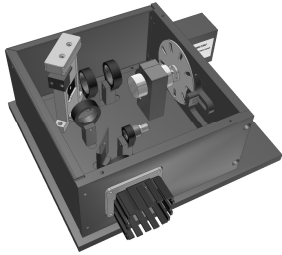
Photoexcitation: OEL



The sensing compound is Barium Chlorofluoride doped with a minute trace of Samarium, BaClF: Sm^{3+} . When this material is exposed to ionising radiation its electronic structure is altered so that Sm^{3+} goes to Sm^{2+} . This is a significant and very stable change to the material, unlike currently marketed technologies (ie Sm^{2+} acts as a deep electron trap). This means that the material can be directly photo

excited. These deep electron traps form stable optical centres which are between the valence and conduction bands. These are not destroyed by the read process. In contrast, current technologies (OSL and TLD) have electron-hole pairs which recombine via the conduction band, hence the data is lost or attenuated during the read process.

ANALYSIS OF THE COMPOUND



When the radiation-exposed material is illuminated with a blue light (optimal 405nm) from a laser (or high intensity LED), the compound emits a red light (786.9nm, very narrow spectra) in proportion to the amount of radiation exposure. The analyser consists of the blue light source and a red light measuring system. The red light is detected by a photomultiplier that counts individual photons emitted from the sensing compound.

Specially developed software controls the analyser and processes the photon count data to give an accurate reading of the radiation dose.

Limitations of current dosimetry technologies means that portable, rapid response radiation monitoring is complex and expensive compared to OEL. The technology can be applied to both centralised dosimetry and highly portable dosimetry for military and homeland security applications, (eg an integrated, dosimeter and analyser device).

Patents & Intellectual Property

PCT/AU2005/001905 - Radiation Storage phosphor and applications

Priority date: 17 December 2004

Status: In national phase in major jurisdictions
- *ISR indicates all claims are novel and inventive*
- *Right to practice review being commissioned*

PCT /AU08/001566 - Apparatus and method for detecting and monitoring radiation

Priority date: 23 October 2007

Status: Filed: 23 October 2008

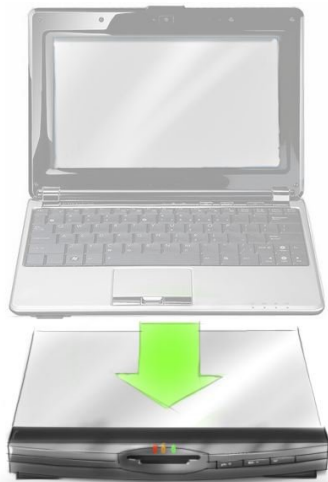
- *Core-shell nanoparticles for radiation storage phosphors*
- *Product applications - Homeland security and military*

There have been several other additions to the above portfolio that we can discuss with potential investors or collaborators.

Product Pipeline

Detailed project plans and costing have been completed to develop to pre production stage the products identified in the target segments listed previously. See below

PRODUCT 1) PORTABLE FULL READER AND BADGES- MICRODOTS



- ✓ Compact, low cost reader with high accuracy suitable for definitive dose measurement.
- ✓ For use in medical radiotherapy applications and on site personnel monitoring – military or civilian
- ✓ Wide dynamic range and sensitivity
- ✓ Rapid, portable reading on site
- ✓ Readily adapted to military use

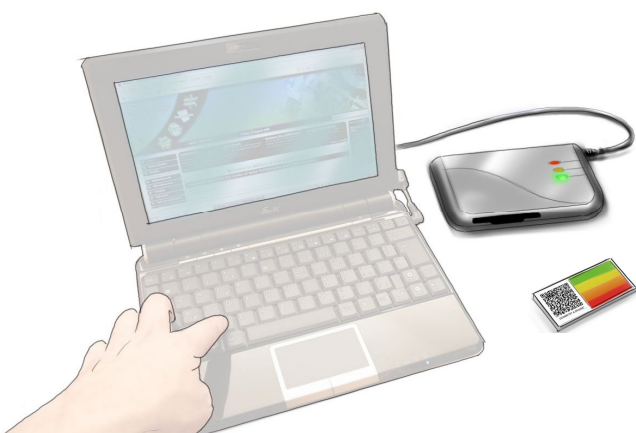
PRODUCT 2) BIOSECURITY/ MILITARY DOSIMETRY SYSTEM- BADGE & READER

Badge – phosphor dots on license or social security cards or military



- ✓ Mass deployment for civilian/military population- coated on card citizens usually carry
- ✓ Low cost and very compact
- ✓ Flexible form factor
- ✓ Wide range sensitivity conforming to CDC radiation poisoning guidelines
- ✓ Fine dose discrimination for medical triaging
- ✓ Very temperature stable for use and stockpiling

Lite Reader- small USB device that can attach to laptops and read badges with phosphor dots



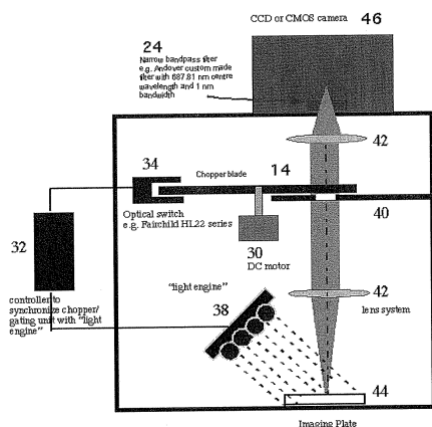
- ✓ Compact, low cost reader
- ✓ Medium range accuracy suitable for fine dose triaging – meets CDC triage requirements
- ✓ Can be deployed in high volume for first responder and medical teams
- ✓ Suitable for local medical facilities

PRODUCT 3) SELF INDICATING SMART CARD DOSIMETER



- ✓ Self indicating dosimeter for mass civilian or military deployment
- ✓ Low cost and compact
- ✓ Compatible with Lite Reader and Full Reader for more accurate reading
- ✓ Wide range sensitivity with indication range suitable for medical triage
 - <100mGy
 - 0.1-0.5 Gy
 - 0.5-2 Gy
 - 2-5 Gy
 - >5 Gy

PRODUCT 4 IMAGING PROOF OF CONCEPT



- ✓ Preliminary prototype reader for proof-of-concept
- ✓ Current work on Prototype 1 for initial performance testing
- ✓ Next step is prototype 2 for formal technology validation
- ✓ Pre-production prototype for joint evaluation by imaging major
- ✓ Pre-production imaging plates using D&I phosphor

Board of Directors

Dr Peter Riddles	<i>Chairman</i>
Mr Stephen Hardy	<i>Non Executive Director</i>
Dr Jennifer Loughman	<i>Non Executive Director</i>
Mr Mark Bennett	<i>Non Executive Director</i>
Dr Robin Stanley	<i>Non Executive Director</i>
Mr Michele Trioni	<i>Company Secretary</i>

Management & Consultants

Dr Jonathan Wright	<i>Chief Executive Officer</i>
Anthony Ujhazy	<i>Chief Operating Officer</i>
Associate Prof. Hans Riesen	<i>Contract R&D</i>

Current Status & Objectives

The initial major milestones towards commercialisation have been undertaken and completed in the last 24 months. These include: (1) completion of an independent validation of the technology (2) positive feedback from potential industry partners- including Australian Defence Forces and US major in dosimetry (3) market validation of key market targets.

We are currently seeking further capital to fund the next stage of development which

is to develop the 3 products described previously to pre production stage and complete POC for imaging. The projects going forward will also be conducted in collaboration or discussion with industry leaders in these fields to minimise market risks and focus product development to industry needs. At the end of this second stage of development we would expect the company valuation to increase significantly and offer options for exit via license, trade sale or IPO.

Contacts

Contact: Dr Jonathan Wright CEO
Mobile: +61417272017
Phone: +61294516266
Email: jwright@dosimetryimaging.com
Web: www.dosimetryimaging.com

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