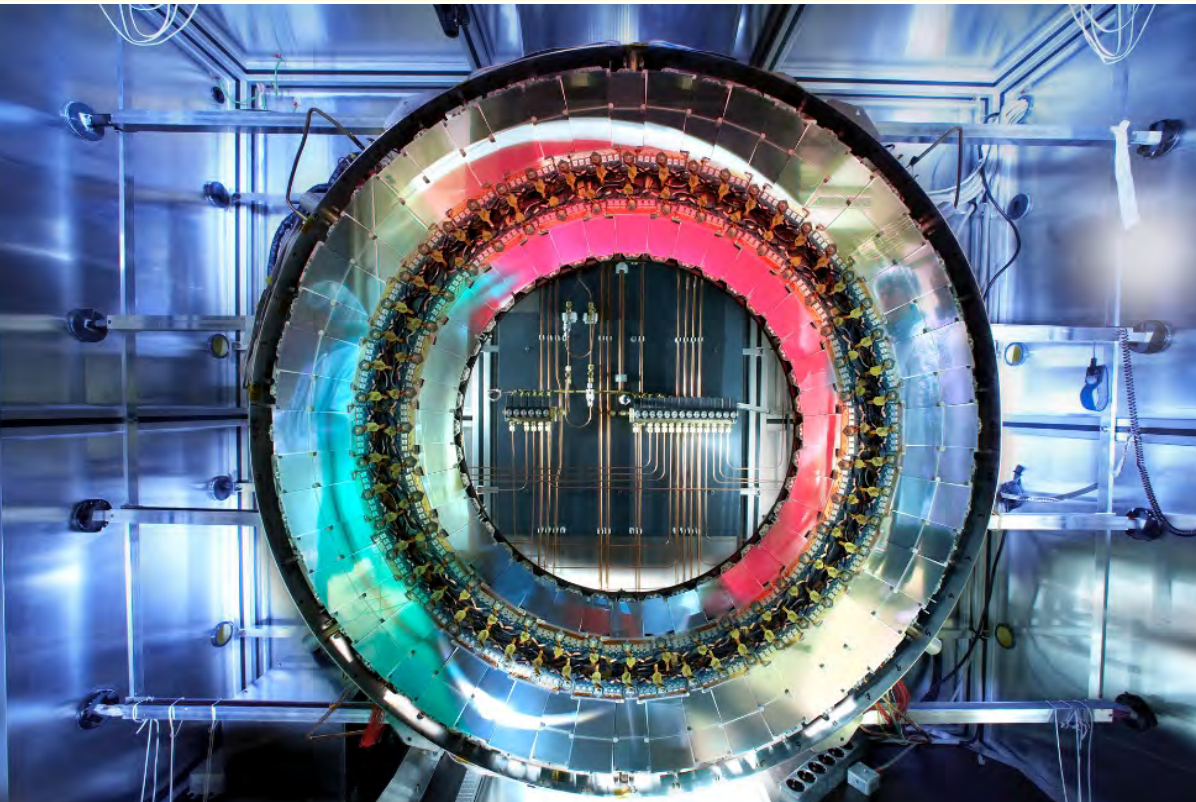


2018 IEEE Nuclear Science Symposium & Medical Imaging Conference

25th Symposium on Room-Temperature
X- and Gamma-Ray Detectors

The Gallery
International Convention Center Sydney, Australia
13-15 November 2018

EXHIBITION GUIDE AND INDUSTRIAL PRESENTATIONS



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78/79/80/81

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Cosmic Rays Physics
HEP Calorimetry
Medical Imaging-PET
Photonics
Beta Spectroscopy
Radioactivity Monitoring
Educational Labs



Front-end



Power Supplies



Digitizers



Monitoring Systems



Educational



2018 IEEE NSS-MIC Exhibition Guide

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**2018 IEEE NSS-MIC
Nuclear Science Symposium &
Medical Imaging Conference**

Location

The Gallery, International Convention Centre Sydney

Exhibition Hours

Tuesday, 13 November

Exhibit Open - Noon — 7:30 p.m.

Refreshment Break — Mid afternoon

Exhibitor Reception — starting at 6 p.m.

Wednesday, 14 November

Exhibit Open — 9 a.m. to 6 p.m.

Refreshment Breaks — Mid morning & mid afternoon

Thursday, 15 November

Exhibit Open — 9 a.m. to 4 p.m.

Refreshment Breaks — Mid morning & mid afternoon

Exhibition Closes at 4 p.m.

2018 IEEE NSS MIC EXHIBITORS

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EXHIBITOR PRESENTATION SCHEDULE

All Exhibitor Presentations will take place in **Meeting Room C4.8**
Wednesday, November 14, 2018

- 09:12 **IDEAS Readout Integrated Circuits and Products**
D. Meier
- 09:30 **SNIPER-GN: A novel portable device for gamma and neutron spectroscopy with special nuclear material identification**
G. Mangiagalli, M. Morichi
- 10:20 **New solutions for SiPM based detection systems**
F. Caponio, A. Abba, A. Cusimano, V. Arosio
- 10:38 **NDL SiPMs and Its Potential Applications**
D. Han, Y. Peng, T. Zhao, K. Liang, R. Yang
- 10:56 **Digital electronics for Compton Suppression or Anti-Cosmic Veto systems at ORTEC**
G. Geurkov
- 11:14 **ON Semiconductor - Sensl Division**
J. Murphy
- 13:40 **MMS : A modular multichannel Low Voltage / High Voltage System for Nuclear & High Energy Physics Detectors**
S. Jurk
- 13:58 **Silicon Photomultiplier technology at Broadcom Inc.**
C. Piemonte
- 14:16 **The PETsys solution for reading a large number of photo-sensors in PET and other applications.**
S. Tavernier
- 14:34 **Investigation of CZT photon counting detection module for multi-energy X-ray imaging**
S. Xi, W. Jie, T. Wang, Y. Li, G. Zha, F. Yang, S. Wu, S. Hu
- 16:00 **Configurable Open Hardware platforms for upcoming experiments**
A. Abba, F. Caponio, C. Alberto

EXHIBITORS

Acrorad Co., Ltd.

Booth 4

Gate City Osaki West Tower 5F, 1-11-1 Osaki, Shinagawa-ku, Tokyo 141-0032, Japan

Telephone: +81 3 3493 7621

Email: CdTe.jp@acrorad.jp

Website: https://www.acrorad.co.jp/index_en.html

Acrorad is a company manufacturing CdTe single crystals, CdTe detectors, and devices consistently. Though CdTe has been recognized for its outstanding characteristics as a radiation detector for over 30 years, it was very difficult to manufacture high quality CdTe crystals and detectors for stable supply. After more than 20 years of research activity, Acrorad has successfully developed our own technology to realize 4-inch diameter single crystal by Traveling Heater Method (THM) which enables us to produce the highest quality CdTe radiation detectors in large volume. We exhibit not only the CdTe single crystal itself but also applied products based on this technology such as X-ray and Gamma-ray imagers.

ADIT Electron Tubes

Booth 37

300 Crane St, Sweetwater, 79556-4602, United States,

Tel: 325-235 1418, Toll free: 800-399 4557 Fax: 325-235 2872

Email: sales@electron tubes.com

Website: <http://www.et-enterprises.com>

ADIT Electron Tubes, together with our sister company, ET Enterprises Ltd, designs and manufactures photomultiplier tubes, housings, voltage dividers, power supplies, signal processing modules and photodetector modules. Photomultipliers are available in diameters from 1/2" to 11", some with our new high QE photocathodes. Together with a full standard product range for scintillation counting applications, special tubes are available:

- With special photocathodes for use at cryogenic temperatures, for dark matter experiments
- With low background and ultra-low background glass
- With special photocathodes for high temperature operation for use in logging applications
- Ruggedized and qualified for spaceflight applications

Recent developments include:

- High QE photocathodes
- Compact photomultiplier tubes
- L25D series fast 1" tube
- MCA power base

The ADIT brand can trace its origins to the DuMont and SRC companies and is now manufactured exclusively in Sweetwater, Texas.

The Electron Tubes product line is the former EMI brand, manufactured primarily by our sister company, ET Enterprises Ltd, in Uxbridge, UK. Some of the Electron Tubes brand product is also now manufactured in Sweetwater, Texas.

Both manufacturing facilities are ISO 9001 certified.

We take pride in offering competitive pricing and on-time delivery supported by outstanding customer service.

ADVACAM Ltd**Booth 18**

⇒ U Pergamenky 1145/12, Prague 7, 17000, Czech Republic,

⇒ Tietotie 3, 02150 Espoo, Finland

Email: info@advacam.comWebsite: www.advacam.com

ADVACAM is a high-tech spin-off company of academic institutions. ADVACAM commercialises Medipix/Timepix technology that is under development at CERN, Switzerland. The team consists of renowned scientists, engineers and programmers. ADVACAM has a long experience in silicon sensor manufacturing, micro-packaging technologies, electronics design, software development and in applications of radiation imaging detectors.

ADVACAM s.r.o, Prague: imaging X-ray cameras and solutions
Spin-off from Institute of Experimental and Applied Physics, Prague

ADVACAM s.r.o. designs, manufactures and sells digital material resolving color X-ray imaging cameras that represent the next generation of high-sensitivity and resolution imaging particle detectors. These are cameras that can register and display ionizing radiation of all types, such as X-rays, gamma-rays, electrons, ions, and even neutrons. They are characterized by high resolution, high scanning speed and exceptional positional and directional sensitivity. Detectors can capture not only the time of arrival, position and energy of the particle but also the shape of its path.

ADVACAM Oy, Espoo: semiconductor sensors & modules
Spin-off from VTT Technical Research Centre of Finland

ADVACAM Oy provides a unique combination of fabrication services and contracts for in-house manufactured hybrid pixel sensors. The team has 30-year experience in the sensor fabrication, wafer-level solder micro bumping and flip chip assembling. The company also operates in northern Europe's largest clean room facilities, located in Espoo, Finland.

Albemarle**Booth 14**

Geb. G879 Industriepark Hoechst, Frankfurt, 65926, Germany,

Email: thomas.krause@albemarle.com,Website: thomas.krause@albemarle.com

Alpha Spectra, Inc.

Booth 1

715 Arrowst Court, Grand Junction, 81505, United States,

Telephone: +1 970 243-4477

Email: fjwxtals@alphaspectra.com

Website: www.alphaspectra.com .

Alpha Spectra, Inc. manufactures scintillation detectors for homeland security, health physics, academic research, industrial thickness and level gauges, medical diagnosis and oil and gas exploration. We now grow NaI(Tl), NaI(pure), CsI(Na), CsI(Tl), and CsI(pure) at our facility. We offer designs that utilize other scintillation materials including: BGO, CsI(Na), CsI(Tl), CaF₂(Eu), Plastic and Liquid Scintillator materials.

ASI has developed over 1000 different detector designs. Our high-quality detectors are assembled utilizing techniques that have been developed with over 100 years of combined working experience. We excel in providing excellent support in the design and development of prototype detectors. Our staff will support your project and provide the expertise and responsiveness that it requires. Contact Alpha Spectra, Inc. for your scintillation detector requirements and be assured that you will receive personal attention. Stop by our trade show booth and ask us about new developments.

AMPTEK Inc.**Booth 15**

14 De Angelo Drive, Bedford, MA - 01730, United States,

Telephone: +1 781 275-2242

Email: Amptek.sales@ametek.comWebsite: www.amptek.com

AMPTEK Inc. is the world leader in supplying low cost thermoelectrically cooled X-Ray Fluorescence (XRF) Detectors and Electronics. The SDD, Si-PIN and CdTe detectors, with their Preamplifiers and Digital Pulse Processors (DPP), are ideal for OEMs developing table-top or hand-held XRF analyzers. Applications include RoHS/WEEE, Process Control and Alloy/Lead analysis. Amptek offers simple to use, low-cost, reliable systems that are ideal for laboratory and field use and for OEMs.

Introducing newly acquired in-house manufacturing bringing you the highest performing detectors available. This new family of detectors have lower noise, lower leakage current, better charge collection, and uniformity from detector to detector. This results in superior peak-to-background, peak-to-tail, resolution and a more Gaussian spectrum. See our new line of ultra high performance FAST SDD®, large area FAST SDD®, improved SDD and our newest Si-PIN detectors. For over 40 years, Amptek has defined the true state-of-the-art.

Amptek scintillation detectors are used world-wide in nuclear plant monitoring and homeland security applications. The GAMMA-RAD5 is a portable, complete, integrated gamma-ray spectrometer. It includes a scintillator and PMT, Amptek's DP5G DPP, all the hardware and software necessary to control and communicate to a PC, and all power supplies. The GAMMA-RAD5 is ideally suited for a wide range of gamma-ray spectroscopy measurements, from lab applications to most harsh field applications.

The Amptek TB-5 Digital Tube Base is packaged in a low power, compact tube base containing all the electronics needed for high performance spectroscopy with your scintillator and photomultiplier tube. It includes a preamplifier, a full-featured digital pulse processor with MCA, a high-voltage power supply, and all low voltage power supplies. It can be controlled and powered over USB or Ethernet. The TB-5's auxiliary interfaces and flexible architecture can be easily tailored for specific applications and advanced data acquisition options.

Amptek's MCA8000D is a state-of-the-art, compact, high performance, digital Multi-Channel Analyzer (MCA). Superior performance is obtained from a high-speed ADC (a 100 MHz 16-bit ADC) and sophisticated digital logic. The MCA8000D digitizes the input signal (the output of an analog shaping amplifier) to measure the pulse height and obtain the pulse height spectrum. The high-speed ADC, with a 10 ns conversion time, reduces dead time thus increasing throughput. The digital circuitry yields high accuracy and stability.

Amptek hybrid preamplifiers are the standard for the space industry and used by instrument makers worldwide in both Earth satellites and deep space probes.

APL Engineered Materials, Inc.**Booth 69**

2401, N. Willow Road, Urbana, 61802, United States,

Telephone: 1-217-367-1340

Email: APL_Inquiries@adlt.comWebsite: www.aplmaterials.com

APL Engineered Materials, Inc. is a US-based manufacturing company that has been the leading supplier of halide salts and amalgams to the conventional lighting industry for decades. We manufacture high-purity halides by solution chemistry or using vapor-solid processes. Using our proprietary beading technology, the salts scrubbed to remove trace moisture, melted and converted to free-flowing beads. Our ability to supply grams to metric tons of high purity, dry halide raw materials makes us the desired supplier for commercial and academic crystal growers. Listed below are details for some of our leading halide products. Visit our website for a complete listing.

APL Raw material	SrI₂/EuI₂	CeBr₃	LaBr₃/LaCl₃	⁶LiX	CsI/TlI	HfCl₄/HfBr₄
Customer single crystal	SrI ₂ , CsSrI ₃	CeBr ₃	LaBr ₃ , LaCl ₃ , CLLBC	LiF, CLYC, CLLBC, (Na,Li)I	CsI	CHC, CHB
Trace metal purity (%)	99.995	99.99	99.999	⁶ Li<95	99.999	99.9
H ₂ O (ppm)	<20	<20	<20	<20	<200	
O	Low	Low	Low	Low		
Background radioactivity		Low	Low			
Morphology	Beads	Beads	Beads	Beads	Powder	Powder
Melt properties					No visible impurities	

APL also offers services such as custom manufacturing, ability to manufacture multicomponent beads, re-purification, custom quartz ampoules and external analytical testing. Email us if you need additional information

Bee Research Pty Ltd**Booth 59**

T/A Gammaspectacular

Suite 315/247 Coward St., Mascot, NSW 2020, Australia

Telephone: +61 412 422 318

Email: steven@gammaspectacular.comWebsite: <https://www.gammaspectacular.com>

Beijing High Energy New Technology Co., Ltd**Booth 73**

Rm 302, No.18 Chongxin Chuangyi Building, Shixing East Street, Shijingshan District, Beijing, 100043, China,

Telephone: +86-10-88233093

Email: heyanjun@ihep.ac.cn,

Website: www.ihep.ac.cn

Beijing High Energy New Technology Co., Ltd (for short HENT) specializes in R&D for nuclear technology applications and product commercialization. HENT was founded in 1988, as a subsidiary of Institute of High Energy Physics Chinese Academy of Sciences and Golden Horse Group.

With the goal of building nuclear technology incubation platform and productization base and relying on the strong scientific research ability of IHEP and human resources, By means of technology innovation and system integration, HENT is a new high-tech enterprise dedicating in R&D, production, promotion, sales, service and training that transforms the achievements of science and technology and high-tech new product development on the basis of the existing advanced technology and provides the nuclear detection industry solutions.

BHGE / Reuter-Stokes**Booth 49**

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Broadcom Inc.**Booth 72**

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email: thomas.lichtenegger@broadcom.com

Website: www.broadcom.com

Broadcom Inc. is a leading designer, developer and global supplier of a broad range of analog and digital semiconductor solutions. We combine global scale, engineering depth, broad portfolio diversity, superior execution and operational focus to deliver leading edge products so our customers can build and grow successful businesses today and in the future. Silicon Photo Multiplier (SiPM) has been added to the Broadcom product portfolio. The Broadcom NUV-HD SiPM products show excellent features: a very high PDE in the blue-UV combined with a small SPAD pitch of 30 μm , a very uniform and stable breakdown voltage and a very compact chip-size package with TSV. First SiPM products have been released to the market and other form factors will follow by the end of 2018.

C&A Corporation

6-6-40 Aza-Aoba, Aramaki, Aoba-ku, Sendai, 9808579, Japan,
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Email: info@c-and-a.jp ,
Website: www.c-and-a.jp

Booth 51

CAEN S.p.A.

Via Vetraria 11 - 55049 Viareggio, Italy
Telephone: +39 0584 388398
Contact email: info@caen.it
Website: www.caen.it

Booth 78

CAEN SpA is acknowledged as the only company in the world providing a complete range of High/Low Voltage Power Supply systems and Front-End/Data Acquisition modules which meet IEEE Standards for Nuclear and Particle Physics.

Extensive Research and Development capabilities allowed CAEN S.p.A. to play an important long-term role in this field. CAEN activities have always been at the forefront of technology, thanks to years of intensive collaborations with the most important Research Centers of the world.

CAEN products appeal to a wide range of customers including engineers, scientists and technical professionals who all trust them to achieve their goals faster and more effectively.

Strong of the experience in the physics research world CAEN instruments are today used in many advanced industrial applications. Today CAEN is looking far ahead, and its road-map includes the development of instruments not only for research but for real life applications like Environmental Monitoring, Homeland Security, etc. A new series of instruments and electronics for the growing SiPM detectors have been introduced to satisfy the need of a growing user's community. CAEN is also worldwide distributor of the WEEROC products.

Products:

Modular Pulse Processing Electronics
Waveform Digitizers
Digital Spectroscopy
Electronics for SiPM
Power Supplies
Digital Detector Emulators
Educational Kits

Applications:

High Energy Physics
Astrophysics
Neutrino Physics
Dark Matter Investigation
Nuclear Physics
Material Science
Medical Applications
Homeland Security
Industrial Applications

CapeSym**Booth 67**

6 Huron Dr. Natick, MA 01760 USA

Telephone: +1 508-653-7100

Contact email: sales@capeym.comWebsite: www.capeym.com

CapeSym is a multi-faceted company offering novel technical crystals for radioactive and nuclear materials detection, high energy physics, environmental monitoring, and sub-surface applications. Our portfolio includes enhanced medium energy resolution SrI₂-based ScintiClear™, dual neutron/gamma Elpasolite scintillators, inorganic/organic composite scintillators, TlBr, CZT and other semiconductor materials. In addition, CapeSym offers SYMMIC thermal analysis software and materials characterization and engineering consulting services.

Our ScintiClear gamma detectors have high light output and energy resolution reaching 2.9% at 662 keV, for unambiguous identification. They are based on strontium-iodide technology originally developed by Government laboratories. CapeSym has productized this crystal using industrial processes that drive cost down, and performance up. Barriers to consistent performance that were problematic in laboratory testing have been identified and eliminated. Energy resolution better than 3.3% is warranted even in large diameters. ScintiClear is also essentially free of internal radioactivity.

We offer ScintiClear and other radiation detection materials as encapsulated crystals, or as packaged detector cores up to 3" in diameter. (larger for composites?) The detector cores include a specially selected PMT or SiPM array and ANSI compatible, rugged, compact packaging. Our Developer's Kit is a plug-and-play solution that includes the PMT, high voltage supply, and multi-channel analyzer.

CLEAR PULSE Co., LTD. / Sales and Marketing**Booth 75**

Chuo 6-25-17, Ota-ku, 1430024, Japan,

Telephone: +81 03-3755-0045

Email: yajima@clearpulse.co.jpWebsite: www.clearpulse.co.jp

CLEAR PULSE Co., Ltd. was established in 1971. Our products include originally developed spectrum stabilizer, digital rate meter, PC based PHA as the first model in Japan. CLEAR PULSE Co., Ltd. has been enhancing the corporate policy to provide state of the art custom order products to the customers. CLEAR PULSE Co., Ltd. also has been supplying unique AEC NIM Bin series products including standard Bin & PS, low noise charge sensitive preamplifiers including custom made hybrid IC based multi-channel preamplifiers and main-amplifiers. Traditionally CLEAR PULSE 's collaborators are national & public organizations (mostly universities and institutes) for physics and radiation measurement & control. Our main products are as follows. NIM modules: NIM Bin & PSs, ADCs, Multi-channel amplifiers, Pulse shaping amplifiers, Scaler timers, HV power supplies, NIM blank modules, Physics & radiation measurement instruments. Front-end and Readout electronics for 64 channel and more SiPM and MAPMT. The probes including CdTe/CdZnTe/ TlBr/

GAGG/ SrI2(Eu)/CsI(Tl) with optimized preamplifier. Low Noise Charge-sensitive preamplifiers, Multi-input PHAs, Environmental radiation monitors, Gamma Camera for hot spot finder, Balloon installed cosmic-ray measurement systems, Car-borne/ Hand-borne radiation survey systems, Ionization chambers.

CRYTUR, spol. s r.o.

Booth 64

Na Lukách 2283

511 01, Turnov, Czech republic

Telephone: +420 481 319 511

Contact e-mail: sales@crytur.cz

Website: www.crytur.com

Crytur is one of the **world's leading** companies in synthetic crystal manufacturing and processing with a strong focus on niche applications and client specific projects built on high expertise and close cooperation in research and development. Crytur follows the **tradition** of crystal growing and processing reaching back to 1935. During the past decades, Crytur has gained worldwide recognition as a provider of integrated crystal-based solutions for science and industry.

Crytur operates a **modern facility** where it utilizes sophisticated, proprietary crystal growing technologies and precise machining to meet the highest production standards. Achieving **top production quality** would not be possible without maintaining strict control throughout the whole manufacturing process and constant modernization of production technologies. The key to Crytur's long term success lies in coherent material application and **proprietary research and development** resulting in a wide variety of crystal-based detectors and devices as well as new materials. This approach has made Crytur to become the world's leading supplier of scintillation detectors for electron microscopy.

Crytur also maintains long-term cooperation with a number of academic institutions which provides first class background from the research as well as the personnel point of view. Standard production portfolio covers:

- Scintillators
- Detection units for electron microscopy
- Laser rods and other laser components
- X-ray imaging systems
- Monocrystalline phosphors
- Sapphire profiles
- Crystal based precision optics

Eljen Technology**Booth 9**

1300 W Broadway
 Sweetwater Texas 79556 USA
 Ph: 325-235-4276
 Email: eljen@eljentechnology.com
 Website: www.eljentechnology.com

Eljen Technology is one of the world leaders in the development and manufacturer of organic plastic scintillation material encompassing cast plastic and liquid scintillators as well as reflective paints, and glues. We have grown to over 60 employees and ship our products worldwide. Visit our booth for a new catalog of our products and see new developments in organic scintillators. The latest development is our Li6 Loaded PSD Plastic Scintillator (EJ-270) and our Li6/ZnS Thermal Neutron detector (EJ-426). We have been providing scintillators and assemblies to research and commercial customers worldwide since 1997.

Epic Crystal Co., Ltd**Booth 3****上海烁杰晶体材料有限公司**

Rm 972, Block D, Zhongyin International
 Huaqiao Town, Kunshan City 215332, China
 Telephone: +86 512-5013-5884(sales) | +86 21 3921 5234(factory)
 Contact email: sales@epic-crystal.com
 Website: www.epic-crystal.com

Epic Crystal Co., Ltd is the leading developer and manufacturer of scintillator crystals in China, including the typical CsI(Tl), NaI(Tl), LYSO(Ce), GAGG(Ce) and BGO. We provide the scintillators in customized design, such as the single crystals, linear or 2 dimensional arrays for use in the applications of radiation detection, nuclear medical imaging, security inspection, high energy physics, geological exploration and other related fields.

Field Viewers Ltd Inc**Booth 71**

321 Tally Ho Dr, Vernon Hills, 60061, United States,
 Telephone: +1 631-943-1631
 Email: junnarkar@fieldviewers.com
 Website: WWW.fieldviewers.com

FLIR Systems

Booth 6

27700 SW Parkway Avenue, Wilsonville, OR 97070, United States,

Email: shows@flir.com,

Website: www.flir.com/detection

For nearly 40 years, FLIR Detection has safeguarded people and property by providing tools that see and sense harmful chemical, biological, radiological, nuclear, and explosives (CBRNE) substances. Intelligence, innovation, and intuitive design are featured in every FLIR device, so responders are prepared when the need arises. Our platform of multi-use products provides cost-effective, high-performance solutions for defense, counterterrorism, homeland security, HAZMAT, law enforcement, public safety, health, environmental, and commercial organizations around the globe.

The FLIR Detection toolkit includes:

- Fido® X-Series Products: Explosives Trace Detection
- identiFINDER® R-Series Products: Radiation Detection and Identification
- Agentase™ C-Series Products: Chemical Detection
- Griffin™ G-Series Products: Chemical Identification and Confirmation

For more information on FLIR detection solutions, visit www.flir.com/detection.

H3D, Inc.

Booth 32

812 Avis Dr., Ann Arbor, 48108, United States,

Telephone: +1 734 661 6416

Email: info@h3dgamma.com

Website: www.h3dgamma.com

H3D offers the world's highest-performance gamma-ray spectrometers and imaging spectrometers. From storage to measurement in less than two minutes, we guarantee 1.1% FWHM energy resolution at 662 keV and omnidirectional isotope-specific images, all in a portable package. The H100 and H400 series are used in nuclear plants globally, and we have products for defense, security, safeguards, and medical applications.

Hilger Crystals Unit R1 Westwood Estate

Margate, Kent CT9 4JL

United Kingdom

Telephone: +44 1843-231166

sales@hilger-crystals.co.uk<http://hilger.dynasil.com>**RMD, 44 Hunt Street**

Watertown, MA 02472

United States

Telephone: +1 617-668-6801

info@rmdinc.com<http://rmd.dynasil.com>**Booth 31**

Hilger Crystals, a leading commercial manufacturer of synthetic crystals for the security, defence and medical industries, specialise in developing custom scintillators and provide high quality linear and two-dimensional imaging arrays for X-ray detection and medical imaging. Hilger also produces optics for infrared spectroscopy.

Founded in 1874, Hilger has a strong history of providing state-of-the-art technical solutions, on time and to incredibly demanding specifications. Their products are used in baggage scanners, X-ray and gamma ray detectors, non-destructive testing, medical imaging, academic and commercial research. Serving customers in 52 countries and always exploring new markets for synthetic crystals.

Radiation Monitoring Devices (RMD) conducts world-renowned research in scintillator materials, photo-detectors, and other nuclear radiation detectors. With over 60 patents, RMD's 90 scientists and engineers are devoted to cutting edge research in applications that incorporate radiation detection and imaging techniques. For the past few years, RMD has provided CYLC gamma-ray & neutron scintillator detectors for commercial applications.

Both RMD and Hilger are part of Dynasil Corporation, a recognized leader in scintillation materials and optical coatings and components serving the photonics industry. Dynasil possesses broad and in-depth know-how in synthetic crystal development and manufacturing, optical thin-film coatings and diffraction gratings. This places Dynasil at the forefront of markets in radiation detection and photonics including lighting and projection, sensors and imaging, laser, space, defense, and industrial applications.

Booth

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CATERING ● CATERING

CATERING ●

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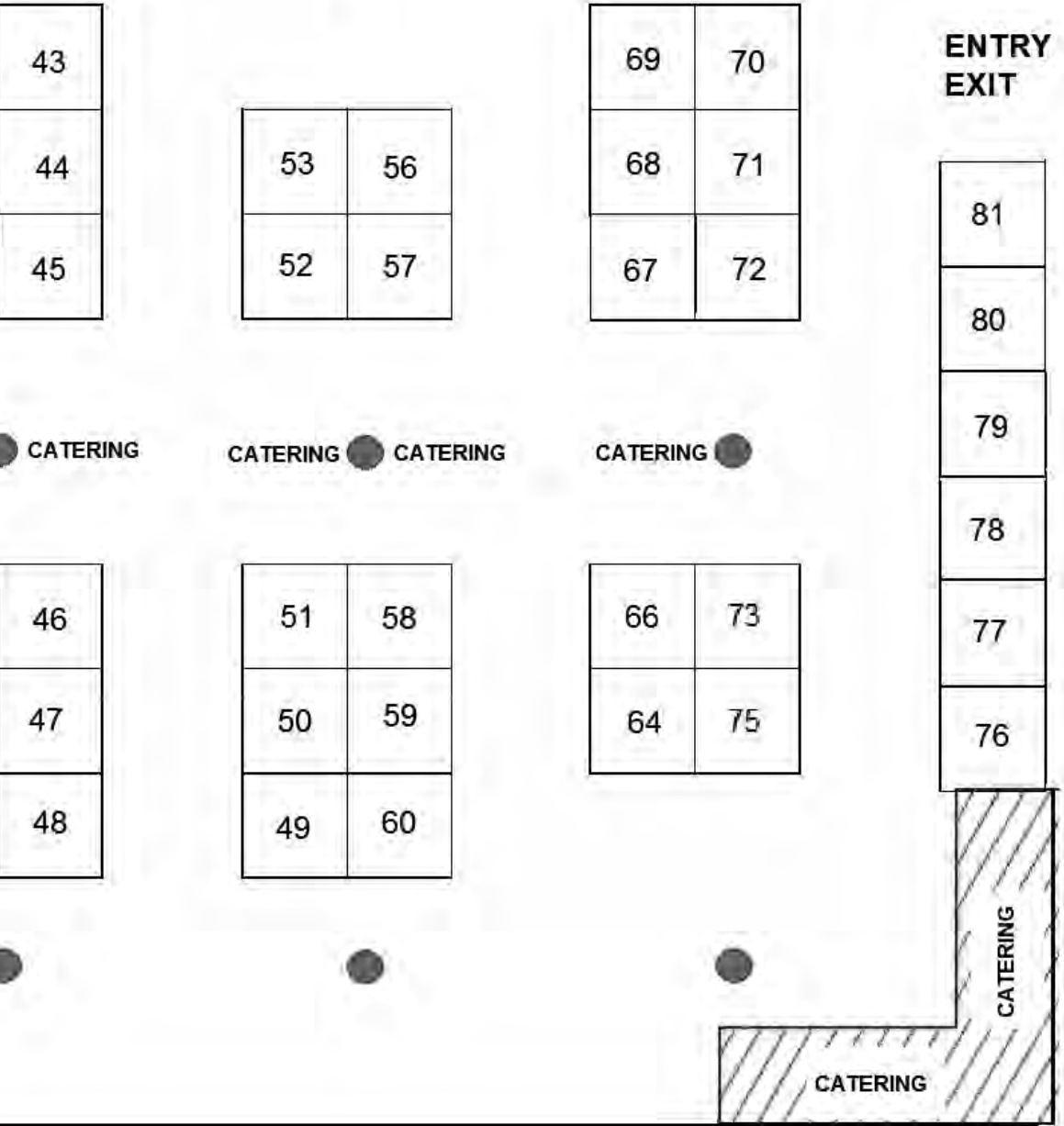
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CATERING

CATERING

Layout



Hitachi High-Tech**Booth 70**

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Telephone: +1 818-280-0745

Email: sales@hitachi-hitec-science.usWebsite: www.hitachi-hightech.com/hhs-us

Hitachi High Tech Science America Inc. designs and manufactures the Vortex line of Silicon Drift Detectors (SDDs) for applications ranging from benchtop instrumentation to the most demanding synchrotron spectroscopy and mapping installations. The Vortex SDD is the leading SDD in the synchrotron and research market segments, it is both reliable and of high quality and can be designed with numerous SDD sensor sizes, this range of sensors includes both the standard 0.5 mm thick sensors as well as the unique 1.0 mm thick SDD sensor. The Vortex SDD is available as a single or multi-sensor SDD designs and is fully compatible with the leading digital pulse processors, capable of input count rates over 7 Mcps and output count rates in excess of 4 Mcps, with resolutions below 230 eV. HHS-US takes pride in working with end-users on custom designs that match their exact needs.

Integrated Detector Electronics AS (IDEAS)**Booth 44**

Gjerdrums vei 19, 0484 Oslo, Norway

Telephone: +47 674 14 990

Contact email: dirk.meier@ideas.noWebsite: <http://www.ideas.no>

IDEAS designs readout integrated circuits (ROIC) and detector systems. We develop new products based on our ROICs and application specific integrated circuits (ASICs). We have designed integrated circuits for scientists and engineers working at ESA, NASA, JAXA, CAS, ISRO, ESS, ESO, CERN, DESY, INFN, GSI, JINR, KEK, etc. We also work on commercial products with partners and companies in radiation detection and imaging technologies, for example, infrared cameras. We are specialized in analog and digital (mixed-signal design) designing in full-custom CMOS and FDSOI down to 28-nm processes.

At the IEEE NSS exhibition we present the IDEAS ROIC/ASIC designs and detector system products: we will highlight ongoing developments on low-noise amplifiers, focal-plane array readout, PMT and SiPM readout for spectroscopy and energy binned counting, pixellated infrared ROICs, and hyperspectral gamma cameras, and integrating and counting x-ray line scanners.

Imdetek Co. Ltd.**Booth 13**

No. 8-1, Tian Gong Rd., Zhouling Industry Park,
 Xixian New area, Shaanxi Province, China 712000
 Telephone: + 86-029-38109233
 Email: sales_market@imdetek.com
 Website: www.imdetek.com

As a professional manufacturer of CZT detectors in China, Imdetek working on CZT crystals growth and detectors for more than 20 years. Imdetek provides CdZnTe radiation detectors, probes and radiation imaging system solutions. Variety of II-VI compound crystal, including substrate CdZnTe single crystal, CdTe single crystal, ZnTe single crystal, CdMnTe single crystal are also available.

Imdetek will continue to devote to being one of the best low dose, high resolution CdZnTe detectors and system solutions supplier in the world.

Inrad Optics**Booth 66**

181 Legrand Ave, Northvale, NJ 07647
 Telephone: +1 201 767-1910
 Contact email: gmurray@inradoptics.com
 Website: www.inradoptics.com

Inrad Optics is a vertically-integrated photonics manufacturer offering crystal-based optical components and devices, custom optical components from both glass and metal, and precision optical and opto-mechanical assemblies. Our components and value-added photonic devices can be found in technologies developed for defense, aerospace, laser, medical, process control, and metrology applications. At NSS we are showcasing the award-winning crystal Scintinel™ stilbene, a scintillator used for fast neutron detection. The crystalline material stilbene holds the potential to enable next-generation radiation detection equipment for homeland security, nuclear nonproliferation, and neutron detection at nuclear facilities. Stilbene is a scintillator and emits light in the presence of nuclear radiation. It has long been recognized as having excellent properties for neutron detection and is now available at affordable prices in a wide range of shapes and sizes. We offer stilbene as a standalone crystal or integrated with a photodetector with housing. Crystal size ranges from 5mm cubes to 150mm cylinders. The primary advantages of stilbene are its high sensitivity to neutrons and excellent discrimination between neutrons and gamma-ray radiation. Additionally, stilbene is a solid-state, non-hazardous material. Stilbene has proven performance advantages over liquid and plastic scintillators and we consistently find crystalline stilbene offers significantly better pulse shape discrimination, along with lower energy thresholds, higher gamma rejection, and higher neutron efficiency.

iseg Spezialelektronik GmbH / Sales**Booth 25**

Bautzner Landstr. 23, Radeberg / OT Rossendorf, 01454, Germany,

Telephone: +49 351 26996-0

Email: sales@iseg-hv.deWebsite: <https://iseg-hv.com/en>Website: www.wiener-d.com

iseg Spezialelektronik GmbH, founded in 1998, and W-IE-NE-R Power Electronics GmbH, founded in 1958, are two very well-known and experienced companies in the physics community, often tasked with demanding assignments to create the best possible power supplies for various nuclear and high energy physics detector setups. To be able to offer the most versatile and easy to use products to efficiently supply front end electronics and particle detectors, the two companies decided to team up their development experience. The result of the cooperation is the "Modular Multichannel System", a modular Low Voltage/High Voltage power supply system easily adaptable to numerous applications in state-of-the-art physics experiments.

In addition to that, the companies iseg Spezialelektronik GmbH and W-IE-NE-R Power Electronics GmbH are specialized in standard and customized equipment for Nuclear Physics Experiments and offer the most versatile and highest available specification and quality series of for example multi and single channel High- and Low Voltage Power Supplies, MTCA.4 Power Supplies, NIM-, VME- and CAMAC-Crates as well as Read-Out Electronics such as Preamplifiers, ADC, TDC and Digital Pulse Processors via partner companies. A combined 81 years of experience in small, middle and large-scale Physics Experiments worldwide make these two companies the partner of choice for a variety of challenging requirements. The quality and longevity of the products will guarantee a long trouble-free runtime of Experiments.

KETEK GmbH / Sales and Marketing**Booth 2**

Hofer Str. 3, Munich, 81737, Germany,

Telephone: +49 89 673467 70

Email: wha@ketek.netWebsite: WWW.ketek.net

KETEK is a leading manufacturer of Silicon Photomultipliers (SiPM).

With the new PM1125-WB, KETEK offers the smallest 1x1 mm² single sensor available on the market ideal for high resolution PET scanners and line arrays.

All KETEK SiPMs are using a highly robust wafer level packaging technology with excellent geometrical fill factor and MSL1-compatibility which makes them perfectly suitable for applications with rugged environmental conditions and high reliability standards. KETEK will present latest information about the product portfolio and applications.

Kinheng crystal (Shanghai) Co., ltd

Booth 52

Sales office: Room 605, Wanda Plaza, Lane 4995, Gonghexin Rd, Shanghai, China. 200435

Tel: +86 21 60490170 Fax: +86 21 63063530

Website: www.kinheng-crystal.com

Kinheng is committed to engineering in scintillation crystal materials. We provide many scintillators including NaI(Tl), CsI(Tl), CsI(Na), BGO, CaF₂:Eu, GAGG:Ce, Ce:LuAG, Pr:LuAG and Line & 2-D array etc. for high energy physics, nuclear medical imaging, oil logging industry, radiation detection, and environmental protection applications.

Micron Semiconductor Ltd

Booth 58

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Telephone: +44 (0) 1903 755252

Email: amandaboothby@micronsemiconductor.co.uk ,

Website: www.micronsemiconductor.co.uk

Mirion Technologies (Canberra)

Booth 5

800 Research Parkway Meriden, CT 06450 USA

Telephone: +1 203-2358-2351

Contact email: sales@mirion.com

Website: www.canberra.com

Canberra, now owned by Mirion Technologies, is a leading supplier of innovative and cost-effective nuclear measurement solutions and services used to maintain safety of personnel, assess the health of nuclear facilities and safeguard the public and the environment. Canberra solutions are used in radiochemistry laboratories, health physics applications, nuclear power operations, nuclear safeguards, nuclear waste management, environmental radiochemistry and other applications.

Nalu Scientific

Booth 68

2800 Woodlawn Dr. Ste #240, Honolulu, 96822, United States,

Telephone: +1 (888) 717-6484

Email: info@naluscientific.com

Website: www.naluscientific.com

NDL (Novel Device Laboratory)**Booth 24**

Xinwai Street No19, Haidian District, 100875, Beijing, China

Telephone: +86-10-62207419

email: info@ndl-sipm.netWebsite: www.ndl-sipm.net

NDL (Novel Device Laboratory) provides epitaxial quenching resistor type SiPM (silicon photomultiplier) products featuring high detection efficiency, large dynamic range, fast response and cost-effective.

Unlike conventional SiPMs structure, which have their quenching resistors fabricated on the surface and used to connect all APD cells to trace metal lines, NDL SiPM employs intrinsic epitaxial layer to form the quenching resistors, using a continuous silicon cap layer as an anode to connect all the APD cells. As a result, NDL SiPM has more compact structure and simpler fabrication technology, allows larger micro cell density (larger dynamic range) while retaining adequate photon detection efficiency (PDE). It is also easy to implement ultra-high resolved position-sensitive SiPMs with charge division mechanism.

NDL SiPMs are particularly suitable to the researches of high energy physics, radiation detection and security, scintillation measurement, optical spectroscopy, nuclear medical imaging (PET, SPECT, CT), biological fluorescence detection, other low level light detection, and so on.

NNVT**Booth 80**

Via Lecco 16, Lambrugo, 22045, Italy,

Telephone: +39-0312289570

Email: abba@nuclearinstruments.euWebsite: www.nuclearinstruments.eu**NuCare Inc.****Booth 30**

Sondo SMART Valley Bldg. B #901, 30 Songdo Miraero, Yeonsu-gu, Incheon, 406-840, Republic of Korea

Telephone: +82-32-837-5520

Email: jinhun.joung@nucaremed.comWebsite: www.nucaremed.com

NuCare, Inc. is a provider of radiation spectroscopy, RIID devices and gamma imaging systems. NuCare has its core competencies in various types of radiation detection/monitoring components and radiographic imaging detectors/systems. The products of NuCare are featured with innovative design and concepts that offer superior quality while maintaining favorable price.

NuCare embraces a wide range of disciplines and is forged by their enthusiasm and desire to provide the best possible measurement solution for you, our customer.

Nuclear Fields (Aust) Pty Ltd**Booth 38**

17 Plasser Crescent
 St Marys, NSW, 2760, Australia
 Telephone: +1 847 299 8450
 Email: ronnie@vanmullekom.com
 Website: www.nuclearfields.com

Nuclear Fields (Aust) P/L is the world leader in Gamma Camera collimation. Together with their sister company Nuclear Fields International B.V. in the Netherlands, for the past 40 years, we have supplied the vast majority of all collimator needs in Nuclear Medicine. For the last 10 years, we also supplied collimators for specialist CT scanners for several security companies and other specialist CT manufacturers. There is no other collimator company in the world with such a diverse know how in collimation technology than Nuclear Fields. Visit our booth to see a diverse range of collimation samples and discuss your particular needs with one of our experts. Also visit our web-site: NUCLEARFIELDS.COM for more information or contact one of our offices in the USA, Netherlands or Australia.

Nuclear Instruments SRL**Booth 81**

Via Lecco 16, Lambrugo, 22045, Italy
 Telephone: +39 0312289570
 Email: info@nuclearinstruments.eu
 Website: www.nuclearinstruments.eu

Nuclear Instruments is a provider of innovative solutions for the nuclear physics world, focusing on emerging technologies for scientific research, industrial process and security. In collaboration with CAEN, Nuclear Instruments displays several SiPM based solutions. Among these, the new I-spector is a cost-effective, fully integrated SiPM-based radiation detector. It squeezes a SiPM array coupled to a scintillator, high voltage, MCA, Ethernet and LORA communication in the same size of a single PMT, offering a smaller, safer and fully integrated solution. The high-resolution MCA and TDC features make I-spector the best solution both for large experiments and for the industrial world.

Moreover, the integrated peak identification and cloud-based alarm monitoring system, coupled with LORA communication, enable I-spector to operate as a stand-alone system for environment monitoring and homeland security. SiPM-based solution catalogue also includes several readout and bias solutions, such as a readout system based on a 64 simultaneous sampling channels, a 128 channels modular readout system based on WeeROC ASICs, digitally controlled 20-85V bias module with programmable temperature compensation.

Innovative solutions are not only limited on the hardware side. We thought that we could do some innovation also on the software side. SciCompiler is the future way to design your next experiments: imagine programming FPGAs in the same way of building a readout system for an experiment using NIM modules. This is only a small part of what you can do with SciCompiler.

Nuclear Instruments can be your next hardware and software design partner for your ideas.

NUCTECH COMPANY LIMITED**Booth 7**

2/F Block A, Tongfang Building, Shuangqinglu, Haidian District, Beijing PRC

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Email: wangfengli@nuctech.com

Website: www.nuctech.com

Deriving from Tsinghua University, Nuctech Company Limited (“Nuctech” for short) is a security inspection solution and service provider that focuses on the radiation imaging technology and provides high-tech security inspection products with proprietary intellectual property rights.

Based on independent and integrated innovation and introduction, coupled with a deep understanding of the application coupled with testing and innovative improvements, Nuctech owns the proprietary intellectual property rights of all core technologies. Nuctech owns world-leading design philosophy and superior products in the technical application fields such as radiation measurement, computed tomography, X-ray radiation imaging, trace explosive and drug analysis and detection, radioactive substance monitoring and identification.

Based on the goal of healthy, stable, coordinated and sustainable development, Nuctech insists on the “strategy of going out”. Covering fields such as nuclear power, environmental protection, customs and civil aviation, Nuctech’s products and services are widely distributed in more than 100 countries and regions in the five continents and are widely recognized by users in the world.

RM0100GA /RM0200GA HPG_e Gamma Spectrometer is the radioactive substance analysis equipment designed and manufactured by NUCTECH. The product integrates the functions of nuclide identification and nuclide activity measurement. It adopts a high-purity germanium detector with excellent energy resolution and adequate detection efficiency, a high-performance multi-channel analyzer and an electric refrigerating device, ensuring nuclide identification of low-dose radioactive substances and accuracy of activity calculation. Mostly, it is used in laboratory analysis of organizations of environmental protection, nuclear power, quality inspection, and scientific research.

ON Semiconductor, Sensl Division,**Booth 40**

Building 6800, Avenue 6000, Cork Airport Business Park, Cork T12 CDF7, Ireland

Telephone: +353 21 240 7110

Website: www.onsemi.com

ON Semiconductor (Phoenix, AZ) acquired Sensl Technologies (Cork, Ireland) in May 2018. The Sensl Division is now part of the Intelligent Sensing Group (ISG) of ON Semiconductor, which has been an established high volume supplier to the Medical, Consumer and Automotive markets for many years.

The existing SPAD and Silicon Photomultiplier (SiPM) products from Sensl now enable ON Semiconductor to expand upon our existing medical markets into new sectors (PET, SPECT etc.) as well as Sensl's existing Radiation and Research markets. ON Semiconductor is committed to improving upon the existing SPAD and SiPM technologies with an innovative product roadmap, and to compliment the photo-sensors with ON Semiconductor's ASIC capabilities.

ON Semiconductor is a leading supplier of semiconductor-based solutions, offering a comprehensive portfolio of energy efficient power management, analog, sensors, logic, timing, connectivity, discrete, SoC and custom devices. The company's products help engineers solve their unique design challenges in medical, automotive, communications, computing, consumer, industrial, aerospace and defense applications.

ORTEC - AMETEK**Booth 10**

801 S. Illinois Ave.

Oak Ridge, TN 37830

Telephone: +1 865-482-4411

Contact email: ortec.info@ametek.comWebsite: www.ortec-online.com

The ORTEC brand name is synonymous with innovation, quality and service in nuclear instrumentation. The product line covers over 1600 products including instruments and systems for research in nuclear and beam-line physics, nuclear medicine and health physics, nuclear power plant, nuclear forensics, government, commercial and environmental laboratories, special nuclear material safeguards, search and identification of radioactive materials, and chemical weapons detection. ORTEC offers a wide range of new HPGe detectors in both LN₂ and electromechanical cryostats for different counting geometries. ORTEC provides premium analog and digital electronics and the latest gamma spectrometry software. In recent years ORTEC experienced a renaissance in product developments. Please stop by our booth to learn about our large diameter commercially available HPGe detectors, new digital dual-MCA and other new products on display.

Oxide Corporation / Marubeni Specialty Chemicals Inc.

Booth 76

10 Bank St. Suite 740, White Plains, 10606, United States

Email: takeyama-t@marubeni-usa.com

Website: www.opt-oxide.com

Marubeni Specialty Chemicals of USA.

Telephone: +1 914-428-6317

Email: Takeyama-T@marubeni-usa.com

OXIDE provides LGSO single crystals for PET (Positron Emission Tomography). LGSO which emits light by radiation incidence as a scintillation material is mass-produced by OXIDE's highly sophisticated technology of crystal growth with high melting point. LGSO OXIDE supplies is a key material for PET with high sensitivity and fast response to γ -rays, helping in achieving the precise diagnosis by PET. OXIDE continues to develop high quality new scintillation crystals even beyond LGSO such as Fast-LGSO with faster decay time and even better time resolution.

Besides LGSO, OXIDE developed other scintillation crystals such as GSO which is widely used for oil well loggings and space physics because of its excellent temperature responses and good radiation resistance. SrI2 (Eu) is characterized by its high light output and Stilbene is by n/γ discrimination. GPS is a newly developed crystal with high light output as well as remarkable energy resolution even at temperature of well over 150°C. These scintillation crystals are well accepted for wide arena of industrial and academic applications, contributing to the field of healthcare and environmental cares.

OXIDE can offer crystals not only for radiation detector but also for photonics industry. We possess the ability to implement a wide range of crystal growth methods such as CZ, EFG, TSSG, FZ, VB, KY and μ PD, allowing us to select the most suitable method for the desired crystal.

PETsys Electronics SA

Booth 42

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TelePhone: +351 96 600 2882

Email: msilveira@petsyselectronics.com

Website: WWW.petsyselectronics.com

Quaesta Instruments LLC**Booth 50**

1665 E. 18th St., Suite 207, Tucson, 85719, United States,

Telephone +1 520-882-3706

Email: gwomack@quaestainstruments.comWebsite: WWW.quaestainstruments.com

Quaesta Instruments products include electronic Neutron Pulse Modules (NPMs) for proportional gas detectors: Helium-3 (He3), Boron-10 (B10) lined, Boron-10 enriched BF₃, and Lithium-6 based detectors.

Quaesta NPM electronics include an integrated MCA (multi-channel analyzer). The integrated MCA greatly reduces the neutron detection system setup time and provides for neutron detector system health monitoring over time.

Quaesta products also include PMT and SiPM based gamma spectrometers. All devices can be ordered with integrated autonomous data logging capability, allowing each device to acquire and store data automatically in device internal storage. Data can be retrieved via the communication interface. USB and Ethernet (including Power over Ethernet) interfaces allow for easy interactive use in laboratory and research environments.

Additionally, Quaesta manufactures multi-sensor remote/ unattended monitoring systems (gamma, neutron, and other environmental sensors) for stationary or mobile platforms. These platforms are often powered via solar panels. Data access includes cellular, satellite, and/or TCPIP (ethernet) telemetry, allowing real-time communication to and from the remote/ unattended platforms. Quaesta radiation detection equipment can be found operating in remote locations on all 7 continents.

Areas of expertise: custom electronic and mechanical design, remote/unattended monitoring, firmware, software, system integration, and communications.

Call us if you have a special project in mind! We enjoy working with customers to create solutions!

Saint-Gobain Crystals**Booth 12**

17900 Great Lakes Parkway, Hiram, Ohio 44234, USA

Telephone: +1-440-834-5600

Contact email: scintillation@saint-gobain.comWebsite: <https://www.crystals.saint-gobain.com/>

Saint-Gobain Crystals provides radiation detection solutions that offer game changing resolution, gamma-neutron detection and advanced photo-sensor integration.

Recent scintillation materials developments through co-doping and collaborated efforts include: Neutron-Gamma dual detection materials such as CLLB [$\text{Cs}_2\text{LiLaBr}_6(\text{Ce})$] and NaI(TL+Li), high density LYSO with 36ns decay time and $\text{LaBr}_3(\text{Ce}+\text{Sr})$ with FWHM approaching 2.2% at 662 keV!

Additional products include inorganic [NaI(Tl), Lanthanum Bromide, BGO, CsI, CdWO_4 etc.] and organic scintillators (Solid BC-400, BC-408 etc.), scintillating & wave shifting fibers, electronics and detector assemblies.

NeuPort™ was introduced to replace He-3 tubes in neutron detection applications such as portal monitors, and performance stabilized electronics for improved performance and decreased time to market.

Saint-Gobain Crystals also produces: Garnet substrates used by Optical telecommunication industry as infrared optical isolators (GGG, SGGG, NGG used to grow semiconductor crystal layers - ready for epitaxy).

X-ray Monochromators are core components needed to perform X-ray Fluorescence Analysis (materials: LiF, SiO_2 , InSb, Si, Ge, PET, EDDT, ADP, TIAP, RbAP, KAP) Sapphire material is a cost-effective solution where high performance and long life are critical, including extreme conditions such as high-temperature, high-pressure or harsh chemical and physical environments.

There are five industrial sites and a commercial and technical presence around the world; we also benefit from Saint-Gobain group's Research & Development facilities and resources on top of the development capabilities we have in our industrial sites.

We leverage those capabilities to design solutions suited to your application offer world class performance not only in laboratory environments but also in the most extreme conditions.

ScintiTech/Amcrys**Booth 47**

1000 Mount Laurel Circle, Shirley, MA 01464, USA

Telephone: +1-978-425-0800

Email: mail@scintitech.comWebsite: www.scintitech.com

From crystal growth to complete nuclear electronic system package manufacturing makes ScintiTech/Amcrys a unique supplier on today's market. Vast variety of large size NaI(Tl), CsI(Tl) and CsI(Na), ZnSe, CeBr₃, LBC, Splastics and other scintillation materials and detectors with integrated readout units are in production line for fast delivery as well as customized products according individual specifications. ScintiTech has fully equipped machine shop in the US and utilizes 3D printed technology for prototyping of some type of detectors and assemblies to accelerate development time.

SCIONIX HOLLAND BV**Booth 16**

Dedicated Scintillation Detectors

P.O. Box 143, 3980 CC Bunnik, The Netherlands

Tel. 31 30 657 0312 Fax. 31 30 656 7563

E-mail: sales@scionix.nlWebsite: www.scionix.nl

SCIONIX Holland B.V. is a company specialized in the design and manufacture of instruments for the detection of Nuclear Radiation based on the principle of **scintillation**. The company was established in 1992.

Besides a wide range of standard scintillation detectors, we supply an extensive variety of tailor-made scintillation detectors to the specifications of the end-user. All known and generally available scintillation materials are employed ranging from plastic scintillators and liquid scintillators to inorganic crystals like NaI(Tl) , CsI(Tl), high density BGO and high resolution CeBr₃ crystals.

The many years of experience in the manufacture of scintillation detectors is an important factor in our business. The main fields in which we are active are Science, Medicine and Industry. Some other areas are Environmental Physics, Nuclear- and High-Energy Physics , Space Research, Medical applications and Security.

SCIONIX maintains relations with a number of Universities and companies where research in the application of scintillation materials and detector techniques is conducted.

Keywords in our business model are **High Quality** and **Flexibility** with the aim to develop and maintain long lasting relationship with our customers.

Shanghai Project Imp. & Exp. Co., Ltd**Booth 60**

Shanghai Project Crystal Co., Ltd.

Room 1678 Qijian Building No. 439 Yishan Road

Shanghai 200030, China

Telephone: +86-21-61531868

Email: sales@pjtelect.com

Website: www.pjtelect.com

Shanghai Project Imp. & Exp Co., Ltd. (Shanghai Project Crystal Co., Ltd.) was founded in 2008. We are mainly devoted to researching and manufacturing all kinds of scintillation crystals. Our company owns eleven sets of furnaces to grow the scintillation crystals and can meet customers' requests. After nearly ten years of operation, our company has a number of professional production staff and a sales team who can give you professional technical support and guarantee high quality. Our products are exported to Europe, the Americas, Southeast Asia and other foreign markets. Our products are praised by foreign customers.

The main products we will show at the exhibition include LYSO(Ce) crystal, BGO crystal, CsI(Tl) crystal, CsI(Na) crystal, NaI(Tl) crystal, LaBr₃(Ce) crystal, scintillation crystal arrays and scintillation detectors. All the products are mainly applied to Gamma-ray and X-ray detectors in areas such as PET/SPECT, nuclear medicine, nuclear physics and high energy physics. We warmly welcome all experts and professors to visit our booth#60 and discuss your needs. We are looking forward to meeting all of you at our booth.

Thank you so much!

Shanghai SICCAS High Technology Corporation**Booth 22**

1295 Dingxi Road, 200050, Shanghai, China

Telephone: +86-21-52412901

Email: yu.qianrong@siccas.comWebsite: www.siccas.com

Established in 1987, Shanghai SICCAS High Technology Corporation is a research-based enterprise wholly invested by Shanghai Institute of Ceramics, Chinese Academy of Sciences (SICCAS). The main products cover various inorganic non-metallic materials including artificial crystals, structural ceramics, functional ceramics, special coatings and related components.

SICCAS, thanks to the tremendous R&D support from Shanghai Institute of Ceramics, has developed various industrial customers worldwide. Through innovation and commercializing lab-technology, SICCAS is able to supply quality products to benefit our customers and greatly committed to meeting the high expectations of our business partners, shareholders, investors, regional communities, and all other stakeholders.

SICHUAN TIANLE PHOTONICS CO., LTD.**Booth 43**

#70 Lixingzhijia, Keji Road, Economic Development Zone, Chongzhou, Chengdu 611200, CHINA

Tel: +86 (0)28 8222 8986

E-mail: info@sctlxd.comWebsite: www.tianlephotonics.com

Sichuan Tianle Photonics Co., Ltd is a high technology company, consisting of a team from rare earth industry and artificially synthesized crystal/ceramic industry experts. Tianle Photonics dedicates its whole effort and intelligence to the production and manufacturing of scintillation materials, laser materials, and related appliances. Tianle Photonics is committed to Lutetium based scintillator crystal growing and manufacturing. Tianle Photonics is currently the biggest Lutetium based scintillator provider in China, particularly the new generation of fast LYSO and LSO scintillator that is coupled with SiPM for the time-of-flight (TOF) PET detector. Due to the distinguished properties of our LYSO and LSO, especially the higher light output and short decay time, Tianle Photonics is currently continually providing crystal elements and arrays to existing customers for their PET scanners. What's more: We meet internationally recognized Standards for Quality Management Systems ISO9001:2015.

And we are a Dun & Bradstreet Registered Business.

SINTEF AS / Minalab**Booth 41**

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Email: Fabrice.Lapique@sintef.noWebsite: www.sintef.no/minalab

SINTEF Microsystems and Nanotechnology (MiNaLab) owns a state-of-the-art fabrication facility with a complete silicon processing line including wet and dry bulk etching of silicon and wafer bonding. Our capability includes fabrication of complex devices with more than 15 photolithographic layers and fine lines down to about 0.8 μm . The general cleanroom area is of class 1000 and mini environments for sensitive processes are of class 10. This coupled with the long track record and experiences in radiation sensors since the early 80s has resulted in SINTEF MiNaLab now being a leading supplier of advanced silicon radiation sensors for industrial and scientific applications including space science, X-ray instrumentation, high-energy physics and photon science. Our key services are design, prototyping and production of custom design radiation sensors from single and double-sided strip sensors, pixel sensors to silicon drift diodes (SDDs). The standard fabrication processes are carried out on 150 mm wafers with thicknesses ranging from 300 micron to 1 mm while the fabrication of 2 mm thick detectors and membrane sensors with active area thickness down to 10 microns has also been successfully realized. Moreover, SINTEF's unique expertise in micro-machining and Micro- Electromechanical systems (MEMS) has facilitated the fabrication of radiation sensors with 3-dimensional structures, which can provide advantages such as edgeless capability, radiation hardness, fast time response, and neutron imaging with higher detection efficiency. Recently, SINTEF MiNaLab has also initiated some R&D activities on radiation detectors based on different substrate materials such as SiC, diamond and CdZnTe (CZT), and nanomaterials such as graphene.

Suzhou JT Crystal Technology**Booth 29**

No. 19, DongCang Road, Taicang, 215400, China,

Telephone: +86 18626120733

Email: bow812@gmail.com,Website: www.jtcrystaltech.com/en/

JT Crystal Technology Co., Ltd is a high-tech joint venture involved in the research and growing of various high temperature oxide crystals by CZ and KY methods. It was founded in July 2012.

Lu_{1.8}Y_{0.2}SiO₅:Ce and Ce:YSO crystals are ideal generation scintillator crystals which have the advantages of high light output and high density, quick decay time and excellent energy resolution. These properties make Lu_{1.8}Y_{0.2}SiO₅:Ce and Ce:YSO ideal materials for detection applications in nuclear physics and nuclear medicine. These applications require higher, improved timing resolution and superior energy resolution. We can provide high quality Lu_{1.8}Y_{0.2}SiO₅:Ce and Ce:YSO to meet customer's requirements and can supply finished pixel or pre-assembled customer-specific arrays.

TechnoAP Co., Ltd.**Booth 77**

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Email: ogahara.kazumi.hk@techno-ap.comhttp://www.techno-ap.com/index_e.html

Our company is composed of members with abundant knowledge and specialized skills in the field of radiation measurement and physical measurement since 2000 based in Ibaraki prefecture of Japan. We can respond widely to customer's needs from design of radiation measurement circuit to measuring system using various detectors.

Specializing in the development and manufacture of digital pulse processor board with high-speed, low-noise, and high-resolution processing of radiation measurements such as gamma-ray, x-ray, and neutron in Realtime. Customer support has also been enhanced for measurement boards, and sample programs such as LabVIEW, Visual C#, Visual C++, and Linux are also offered. We have been collaborating and developing with major Japanese research institutes, which are key to the advancement of world science and technology.

Tohoku-MicroTec Co., Ltd (T-Micro)

Booth 46

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Tohoku-MicroTec (T-Micro) is the unique and advanced 3D/2.5D IC process and MEMS process-oriented Foundry. We provide cutting-edge 3D-IC R&D Prototyping and Pilot / Low-Volume Production Service.

(1) State-of-the-art technologies

From chip to 12-inch 3D process engineering lines and advanced technology platforms

- 3D design / layout / mask making
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(2) 3D stacking LSIs prototype manufacturing service

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- Die-level 3D hetero-integration with backside TSV technology

(3) Support your small-volume, special customized 3D productions, with

- Base-line process set-up for the pilot production
- Facilitate your product development

(4) 2.5D interposer R&D foundry and pilot production service

- Large area interposer
- Interposer with passive devices

United Imaging Healthcare

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We develop and manufacture a full portfolio of advanced medical imaging products, covering Computed Tomography (CT), Molecular Imaging (MI), Magnetic Resonance (MR), Radio Therapy, and X-ray Radiography (XR) products.

We offer a shared, intelligent, open, and secure medical cloud platform. By integrating the Internet, cloud computing, artificial intelligence, big data analysis and other cutting-edge technologies, we have achieved high-quality medical resource sharing and mass diagnostic data deep mining applications in the cloud.

WEEROC

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X-Spectrum GmbH

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X-Spectrum GmbH is dedicated to providing cutting-edge detectors for X-ray experiments at synchrotrons and beyond. X-Spectrum is a DESY spin-off.

We provide the LAMBDA system, a dedicated X-ray camera that is unique in its capabilities. X-Spectrum not only provides the camera itself, but also dedicated IT equipment and software for seamless integration into the most common synchrotron beamline control systems.

We firmly believe that detectors can be easy to use, plug and play devices. Our team is experienced in setting up in many different environments and we believe in support to the experimentalist.

Our pixelated Lambda detectors are designed to be a workhorse at your experiment. With our CdTe sensors, we're able to offer high energy crystallography imaging.

XGLab SRL

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XGLab holds a leadership and innovative position in the field of radiation detectors and electronic instrumentation for X- and Gamma-ray spectroscopic analysis and imaging. XGLab is now part of Bruker Nano Analytics (BNA), a division of the Bruker Corporation, a global leader in scientific instruments and solutions for life sciences and materials research, as well as industrial process and quality control.

We dedicate substantial resources to Research and Development, to provide our customers with technological innovation, high quality products and sophisticated analytical systems, working actively with research institutions, synchrotron users, academics and industrial partners. The main activity areas are ASIC and electronic design radiation detection solutions complete instrumentation design for digital pulse processors and X-ray spectrometers

XGLab is headquartered in Milan, Italy and operates worldwide.

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Booth 39

XIA LLC invents, develops and markets advanced digital pulse processors and data acquisition systems for x-ray, gamma-ray, and other radiation detector applications in research, industry and nuclear safeguards. Our nuclear detector electronics, (Pixie-4e, Pixie-16, Pixie-32, Pixie-Net, microDGF), cover a wide range of applications from pulse shape analysis using high speed scintillators to very high energy resolution HPGe spectrometry, to coincidence data collection in large nuclear physics detector arrays. Our x-ray detector electronics span the spectrum from low cost OEM cards (microDXP) for handheld and benchtop applications to PXI (xMAP) and standalone modules (FalconX8, Mercury) for ultra-high rate counting at synchrotrons and elsewhere. XIA electronics is available in both single-channel formats and expandable multi-channel systems for array detectors. XIA's spectroscopy products include sophisticated pulse detection and pile-up inspection to optimize performance at high count rates. In addition to our range of x-ray and gamma-ray instruments, the UltraLo low background alpha-particle counter is employed for quality control in the semiconductor manufacturing industry. XIA is based in Hayward, California, USA; our multi-lingual staff and overseas representatives support product sales in over 30 countries on six continents. Come visit our booth for more information.

LAMBDA

LARGE AREA MEDIPIX3 BASED DETECTOR ARRAY

X-ray detector w/ pixels

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- big area
- no noise

Vladislav Minukhov
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SCINTILLATORS AND CRYSTAL ARRAYS



With 60+ scientists and engineers devoted to leading-edge research, RMD is known the world over for scintillation, photo detection, and radiation detection.



Hilger, an ISO 9001:2015 certified company, has a long-established 144-year history. Hilger is recognized for its excellence in manufacturing custom-designed scintillators and crystal arrays and for quickly turning innovative research into market-leading products.

CLYC AND CLLBC DUAL-MODE SCINTILLATORS

Together, RMD and Hilger have introduced dual-mode gamma-neutron scintillators to detect harmful gamma-ray and neutron sources. This ability to measure two radiation sources with a single detector provides significant cost benefits and saves critical time by enabling first responders to rapidly and accurately detect a broad range of potential threats.



SCINTILLATION CRYSTALS



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CRYSTAL IMAGING ARRAYS



CUSTOM DETECTORS

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