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Lab launches new Radiation Detection Material Discovery Initiative

\$4.5 million investment over three years integrates multidisciplinary expertise across the lab

Today's security threats are being met with 30-year-old radiation detection technology. With heightened concerns over nuclear proliferation, terrorism and unconventional warfare, both the research and user communities recognize that an alternative strategy for detection and identification of radiation materials must be adopted.

Scientists from Pacific Northwest National Laboratory (PNNL) agree and are teaming with researchers from across the nation to launch new business development and program efforts for the Radiation Detection Material Discovery Initiative (RDMD) – an innovative, lab-level Laboratory-Directed Research and Development initiative focused on next-generation materials for radiation detection.

Meeting National Security Needs

RDMD Initiative lead Tony Peurrung will challenge the multidisciplinary PNNL team to integrate key strengths from all five of the lab's research directorates to make new strides in radiation detection that would meet acute security and other national needs.

\$1.5 million dollars a year over the next three years will fund efforts on the initiative's three "grand challenges" - new materials for nuclide identification, accelerated discovery processes and a fundamental understanding of radiation detection.

The initiative is well-aligned with PNNL's strategy to develop business in the national security, environmental, energy and science technology areas. There is a high demand for better radiation detection capabilities with clients such as Department of Energy's National Nuclear Security Administration, Department of Homeland Security and Department of Defense.

Collaborative efforts inside and outside the lab

Collaborative efforts are underway with Lawrence Berkeley National Laboratory, Washington State University, University of Washington and Notre Dame. Peurrung believes this kind of cooperation and blending of skills will attract additional attention from the scientific community. "We're pulling together diverse PNNL strengths, along with assembling a top-flight national team," says Peurrung.

For more information about the Radiation Detection Materials Discovery Initiative, contact:

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PNNL is recognized as a significant player in the development and deployment of radiation detection technology with key relationships in national and homeland security areas. Advances in radiation detection will impact a range of national concerns, including proliferation detection, border and transportation security, domestic safeguards, environmental and waste treatment, and medical diagnostics.

Peurrung is the Physical and Chemical Sciences Division Director for PNNL's National Security Directorate (NSD). Current RDMD Initiative team members from PNNL include Bret Cannon, Cari Seifert, April Carman working with experiments and experimental planning; John Jaffe, Rene Corrales, Ram Devanathan, Fei Gao and David Jordan involved with theory work; Kim Ferris,

Bobbie-Jo Webb-Robertson working with material informatics; and Gordon Graff with materials synthesis; Chongmin Wang working with energy loss measurements; Larry Olsen and Brian Milbrath working in synthesis and characterization; and Yanwen Zhang and Milbrath working with detection response.

In addition to the strengths of the lab's multidisciplinary team, the RDMD Initiative advisory committee brings national recognition to the Initiative's efforts. Members include committee chair Marvin Weber from Lawrence Berkley National Laboratory, Glenn Knoll from University of Michigan and Bruce Harmon from Ames National Laboratory. Gordon Dudder and Bruce Garrett serve as the lab's members of the committee.

PNNL is a U.S. Department of Energy Office of Science research facility that delivers breakthroughs in the areas of environment, energy, health, fundamental sciences and national security. Battelle, based in Columbus, Ohio, has operated PNNL since 1965. PNNL is located in Richland, Washington, and has an annual business volume of more than \$700 million and over 4,200 employees.