

R&D 100 Finalists for 2024 are announced

 rdworldonline.com/rd-100-finalists-for-2024-are-announced/

By Paul Heney

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A total of 141 Finalists for the 2024 R&D 100 Awards have been announced by *R&D World* magazine. This renowned worldwide science and innovation competition, celebrating its 62nd year, received entries from 16 different countries and regions. This year's esteemed judging panel included 56 well-respected industry professionals from across the world.

The Finalists are listed below by category, and then alphabetically by submission name, and include primary submitting organizations and then co-developing organizations, as provided to *R&D World*.

Next week will be a busy one with additional announcements:

August 6th: R&D Special Recognition Medalists

August 7th: R&D Professional Award Winners

August 8th: R&D 100 Winners

Please note that Special Recognition and Professional Awards categories have no "Finalists," so today's release does not apply to those submissions.

The 2024 R&D 100 gala banquet will be held in Palm Desert (near Palm Springs), California on November 21st. Details and a registration link will be provided next week, along with the winners announcement. **All Finalist, Winner, and additional logos are available for download here.**

A sincere congratulations from our whole staff to all of the Finalists. Being a Finalist is indeed a great honor!

Analytical/Test category

A High-Temperature, Radiation-Endurance Ultrasonic Transducer for Nuclear Harsh Environment Applications

X-wave Innovations, Inc.

Automated digital slide scanner, MSP® 320

Curiosis Inc.

Autonomous Electron Microscope (AutoEM)

Pacific Northwest National Laboratory

Autonomous Sparse-Aperture Multibeam Echo Sounder

MIT Lincoln Laboratory

MIT

AXES: The Complete Advanced X-ray Emission Spectrometry Solution

Argonne National Laboratory

Compact Space Plasma Analyzer

Los Alamos National Laboratory

United States Air Force Academy, i2 Strategic Services, LLC

ENFINIA™ DNA

Elegen Corp.

GEM Premier 7000 with iQM3

Werfen

Key Functional Cell Identity (KFCI)

Industrial Technology Research Institute (ITRI)

Lil' CO2 1.0: Real-Time Insights into Stem Growth and Respiration of Trees

Lawrence Berkeley National Laboratory

LiteScope 2.5 — the cutting-edge of AFM-in-SEM technology

NenoVision s.r.o.

Czech Metrology Institute

MAVERICK

908 Devices

PHOENIX (Portable, High-efficiency, Orthovoltage ENergy, Imaging X-rays)

Los Alamos National Laboratory

Golden Engineering

Pixel

CytoTronics Inc.

QUIC-DEPDOSE: Software tools to prepare for and respond to nuclear emergencies

Los Alamos National Laboratory

REBEL™ Concrete Strength Sensing System

WaveLogix Inc.

Purdue University

Scintillation Hydrogel for Isotopic Neutron Emitters (SHINE)

Idaho National Laboratory

Simurgh

Oak Ridge National Laboratory

ZEISS Industrial Metrology LLC

Thermo Scientific™ Orbitrap™ Astral™ mass spectrometer

Thermo Fisher Scientific

Tunable Knitted Stem Cell Scaffolds

MIT Lincoln Laboratory

MIT Department of Mechanical Engineering

Vero AFM

Oxford Instruments Asylum Research, Inc.

Université de Lyon

IT/Electrical category

Aircore EC Motor for Data Centers

Infinitum

Ameba RAN for NTN/TN convergence network

Industrial Technology Research Institute (ITRI)

MediaTek Inc., Wiwynn Inc., Alpha Inc., Chunghwa Telecom Laboratories

Berxel iHawk P100 Polarization Structured Light Camera

Berxel Photonics Co., Ltd.

Compact and Lightweight Polyphase Extreme Fast Wireless Charging System

Oak Ridge National Laboratory

Volkswagen Group of America, Volkswagen Group Innovation, Volkswagen Group Components, Hyundai-Kia North America Technical Center

Electromagnetic Spectrum Management System

Nevada National Security Sites

Electrooculography and Balance Blast Overpressure Monitoring System (EYEBOOM)

MIT Lincoln Laboratory

Creare LLC, Lifelens LLC

Frontier-X

Johns Hopkins Applied Physics Laboratory

Rocket Lab USA

Full-Duplex Wireless System with Advanced Interference Mitigation

MIT Lincoln Laboratory

Kumu Networks

HARMONIE-SPS

Sandia National Laboratories

Texas A&M University

Heat Injury Prevention System

MIT Lincoln Laboratory

US Army Medical Material Development Activity, US Army Research Institute of Environmental Medicine, General Dynamics Information Technology Inc., Odic Inc.

Ion Pair™ Membrane Electrode Assemblies

Los Alamos National Laboratory

Advent Technologies Holdings, Inc.

MOSAIC, Memory-cube Operability in a Stacked AI Chip for Generative AI

Industrial Technology Research Institute (ITRI)

Powerchip Semiconductor Manufacturing Corporation (PSMC)

N-FLEX High Speed Transmission FPCs

Nano and Advanced Materials Institute

Chung Yin New Materials (H.K.) Company Ltd.

Nanocrystalline Axial Flux Electric Motor

CorePower Magnetics

Carnegie Mellon University

PADWOS (Portable Aircraft Derived Weather Observation System)

MIT Lincoln Laboratory

Precision Photon Synchronization System for Quantum Networking

MIT Lincoln Laboratory

SAFE: Secure Automatic Failsafe Eraser

Los Alamos National Laboratory

Superconductive Many-State Memory and Comparison Logic

MIT Lincoln Laboratory

Traffic Violation Catcher

Institute for Information Industry

TRIPWIRE

Idaho National Laboratory

UltraSonic Photonics

University of Pittsburgh

National Energy Technology Laboratory, Sensible Photonics

Mechanical/Materials category

Adjustable Compact Vibration Damper

NASA Langley Research Center

Agilely Adoptable Demand Responsive Energy Management System (AADREMS)

Industrial Technology Research Institute (ITRI)

AI-LCGC, AI Formulated Low Carbon Geopolymer Concrete

Industrial Technology Research Institute (ITRI)

AIR2CO2 DAC Process

National Energy Technology Laboratory (NETL)

GE Research

Axalta Primerless Consolidated Coating Process

Axalta Coating Systems

Battery Recycling and Water Splitting (BRAWS) Technology

Ames National Laboratory

Iowa State University

Berelex Green

Pinturas Berel S.A de C.V.

BETAFORCETM elastic structural adhesive

DuPont

Broad PANGUJIE filler wire

Shanghai Institute of Optics and Fine Mechanics

CO₂-Fixing Polycarbonate

CHIMEI Corporation

Industrial Technology Research Institute (ITRI)

DIRTSHIELD™ 17 Emulsion

The Dow Chemical Company

Dow AXELERON™ 6321 BK; Prysmian Sirocco Microduct Cables

Dow Packaging & Specialty Plastics

Prysmian

DOWSIL™ 2080 Resin

Dow (Shanghai) Holding Co., Ltd.

DOWSIL™ IE-9100 Emulsion

Dow Performance Silicones, division of The Dow Chemical Company (Dow Inc.)

Gibco™ CTS™ Detachable Dynabeads™

Thermo Fisher Scientific

Heat Exchanger for Low-Conductivity Phase Change Materials

Oak Ridge National Laboratory (ORNL)

High-Efficiency Micro Combined Heat and Power Device

Oak Ridge National Laboratory

Enginuity Power Systems (EPS)

Inexpensive Electrode for Selenium-Laden Wastewater Treatment

Lawrence Berkeley National Laboratory

Interlocking Metasurfaces

Sandia National Laboratories

LAP-B5G

Industrial Technology Research Institute (ITRI)

Formosa Plastic Group Corporation

LCCF Wind Blade

Oak Ridge National Laboratory

MELLT: Mechanochemical Extraction of Lithium at Low Temperatures

Critical Materials Innovation Hub/Ames National Laboratory

Microfabricated Optical Microbaffle for Stray Light Rejection

MIT Lincoln Laboratory

NaPoGlass (Nanoporous Glass)

Industrial Technology Research Institute (ITRI)

NEOLAST™ Elastoester Polymers

Celanese

Under Armour

Next-Generation Blue and Green Light Emitters

Lawrence Berkeley National Laboratory

University of California, Berkeley

PARALOID™ Additives

The Dow Chemical Company

Polartec® Power Shield™ Pro

Milliken & Company

Relocatable/Resiliency Alternative Power Improvement for Distribution – Microgrid-in-a-Box (RAPID-MIB)

Idaho National Laboratory

Aberham Solar

SABIC's LNP™ STAT-KON™ High Electrically Conductive Compound

SABIC's Specialties Business

SABIC's Technology Breakthrough and Advanced Compounds — LNP™ Compounds

SABIC

Safion

Nano and Advanced Materials Institute

Contemporary Amperex Technology Co., Ltd.

Tough and Recyclable Carbon Fiber Composites

Oak Ridge National Laboratory

Transparent Sun Nanocurtain

Nano and Advanced Materials Institute

Harvest Time Facade Limited

Tyvek® Trifecta™ A2 Breather Membrane

DuPont de Nemours, Inc.

Lenzing Plastics GmbH & Co KG (Austria)

VC Lid Cooling technology for Kilowatt-Level Chips, VLiCo

I-Chiun Precision Industry Co., Ltd.

Industrial Technology Research Institute (ITRI), National Tsing Hua University

Other category

InertiaMeter: Cost-Effective Real-Time Power System Inertia Monitor

Oak Ridge National Laboratory

The University of Tennessee, Knoxville

Onso short-read sequencing system

PacBio

Spectra™ 6

E Ink

Process/Prototyping category

3S Yoga®_Stretch, Smart, Safety

Taiwan Textile Research Institute

AI self-learning Fabric Inspecting System

Taiwan Textile Research Institute (TTRI)

AI Machinevision Corp.

APEX CDR

Oak Ridge National Laboratory (ORNL)

Holocene Climate Corporation

Bionic Mono-Material Leather

Taiwan Textile Research Institute (TTRI)

TSRC Corp.

Direct Lithium Extraction Sorbents

Oak Ridge National Laboratory (ORNL)

Element3 Mineral Selective Technologies, Natural History Museum of Los Angeles County

Direct Recycling and Remanufacturing of Li-Ion Battery Electrode Scraps

Oak Ridge National Laboratory

Appalachian Renewal Technologies

Direct recycling process for lithium-ion battery cells

Argonne National Laboratory

EHE Combustion System

Metal Industries Research & Development Centre (MIRDC)

Engineered Substrates for Rapid Advanced Imaging Sensor Development

MIT Lincoln Laboratory

EPi-Sense® ST System

Spectrum Plastics Group: A DuPont Business

AtriCure

EXUDE Elite Spectral Beam Combining Optic

Lawrence Livermore National Laboratory

Hydro4Crystal

Argonne National Laboratory

In-Line X-Ray Critical Dimension Metrology System (XRCD)

NanoSeeX Co., Ltd.

Industrial Technology Research Institute (ITRI)

Isostatic Pressing Approaches for Conventional Li-ion and Solid-State Battery Technology

Oak Ridge National Laboratory

Quintus Technologies LLC.

Low-cost Direct Air Capture of CO₂ with Clay Nanointerlayers (LDAC3)

Sandia National Laboratories

Purdue University

Low-Temperature Additive Manufacturing of Glass Composites

MIT Lincoln Laboratory

Lysol Air Sanitizer

Reckitt Benckiser Group

Machinable, Larger-Scale, Self-Healing RHEAs for Energy and Aerospace Applications

Sandia National Laboratories

Pennsylvania State, Dynetics, and the University of New Mexico

MBE-DAC: Multifunctional Building Equipment for Direct Air Capture

Oak Ridge National Laboratory

MedUSA: Large-Scale Multiagent Wire-Arc Additive Manufacturing

Oak Ridge National Laboratory (ORNL)

Lincoln Electric

Megachips: Extremely Large-Area Integrated Circuits Constructed from Chipllets

MIT Lincoln Laboratory

Membrane Solvent Extraction (MSX) Technology for Critical Battery Materials Recycling

Oak Ridge National Laboratory

Momentum Technologies Inc.

Micro Complex Internal Pipe Coating System Technology (CplxMP-ICS)

Metal Industries Research & Development Centre (MIRDC)

Modular Electrochemical Nuclear Decontamination System (MENDS)

Los Alamos National Laboratory

Mushroom Leather Cultivates System

Taiwan Textile Research Institute (TTRI)

Nanocomposite Inks for 3D Printing Radio-Frequency Devices and Radiation Shielding

MIT Lincoln Laboratory

Harvard University

Plant Multigene Engineering System

Oak Ridge National Laboratory (ORNL)

Plastic Recycler Catalyst

Oak Ridge National Laboratory

Re-Du

Rapid thermal processing of solid-state lithium battery ceramic electrolyte materials

Argonne National Laboratory

PulseForge Inc.

Real-Time Evaluator for Fast and Accurate Installation of Prefabricated Components

Oak Ridge National Laboratory

Short-Chained Digital Ink

Taiwan Textile Research Institute (TTRI)

SULAC™ — Lactic Acid to Lactide Technology for PLA

Sulzer

Thiozen Hydrogen cycle

Thiozen Inc.

Ultra-Fast Selective Delamination (UFSD) of LIB Electrodes

Argonne National Laboratory

Software/Services category

AI-driven Self-Navigating Miniature Serpentine Robotic System for Natural Orifice Transluminal Endoscopic Surgery, AiSNMSR

Industrial Technology Research Institute (ITRI)

Autonomous Air-ground Cooperative Tunnel Inspector

Hong Kong Productivity Council

Civil Engineering and Development Department (CEDD), HKSAR and Hyder-Meinhardt Joint Venture (HMJV)

Behavior, Energy, Autonomy, Mobility Comprehensive Regional Evaluator (BEAM CORE)

Lawrence Berkeley National Laboratory

National Renewable Energy Laboratory, UrbanSim Inc., SimRise LLC, University of California, Berkeley, University of California, Santa Cruz, Technical University Dortmund, Graphhopper GmbH

DeepHyper

Oak Ridge National Laboratory

Argonne National Laboratory, Lawrence Berkeley National Laboratory, Pennsylvania State University, Université Paris-Saclay

Digital Twin System for Tapping Process, DiTwS-TP

China Steel Corporation (CSC)

Industrial Technology Research Institute (ITRI)

EGRASS

Pacific Northwest National Laboratory (PNNL)

Fierro Computational Mechanics and Materials Science Software

Los Alamos National Laboratory

FocusNet

MIT Lincoln Laboratory

gpCAM

Lawrence Berkeley National Laboratory

Hardware Assisted Kernel Compartmentalization (HAKC)

MIT Lincoln Laboratory

iMat for Smart Care

Institute for Information Industry

Humetrics Inc., YungShin Social Welfare Foundation, Compal Electronics, Inc.

IRAD

Oak Ridge National Laboratory

University of Tennessee, Knoxville

IRIS-SDK: Intelligent Runtime System for Extremely Heterogeneous Computer Architectures

Oak Ridge National Laboratory

Lagrangian-Eulerian Spark-Ignition (LESI) Model

Argonne National Laboratory

MAQ: Machine Learning on Adiabatic Quantum Computers

Oak Ridge National Laboratory

Mixture deconvolution pipeline for forensic investigative genetic genealogy

MIT Lincoln Laboratory

National Economic Resilience Data Explorer (NERDE)

Argonne National Laboratory

ND α : Nondestructive Alpha Spectrometer

Los Alamos National Laboratory

Neuron Tracing and Active Learning Environment

MIT Lincoln Laboratory

Massachusetts Institute of Technology

OpenMxP: Open-Source Mixed-Precision Computing

Oak Ridge National Laboratory

Pele

National Renewable Energy Laboratory

Sandia National Laboratories, Lawrence Berkeley National Laboratory, Oak Ridge National Laboratory, Argonne National Laboratory, Lawrence Livermore National Laboratory

Quantum-in-the-Loop

National Renewable Energy Laboratory

Atom Computing, Inc.

Real-time Advanced Imaging Technology

Pacific Northwest National Laboratory

U.S. Department of Homeland Security Science & Technology Directorate

SolarAPP+

National Renewable Energy Laboratory

UMap

Lawrence Livermore National Laboratory

UnifyFS

Lawrence Livermore National Laboratory

Oak Ridge National Laboratory National Center for Supercomputing Applications, University of Illinois

Once again, the Finalist logos are available for **[download here](#)**, for all Finalists to use in their marketing, social media, and promotional campaigns. Congratulations to all this year's Finalists!