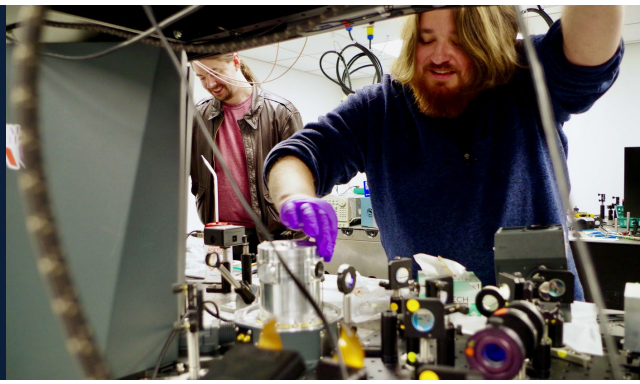
MONTANA STATE UNIVERSITY

Spectrum LAB
Montana State University

RESEARCH • INNOVATION • MENTORSHIP

Nurturing photonic innovation into Montana industry

Advancing optics, photonics & quantum technologies from fundamental research to real-world markets.



About Spectrum Lab

Founded in 1999, Spectrum Lab is an interdisciplinary research center at Montana State University. Our scientists, engineers and students develop photonic and quantum technologies, transfer them to Montana companies, and create hands-on pathways into high-tech careers for students.

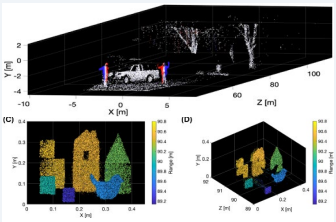
$10 M
Worth of test & measurement equipment

122
Publications since founding – average rate of 4.5/yr

38
Current staff & students (16 staff, 22 students)

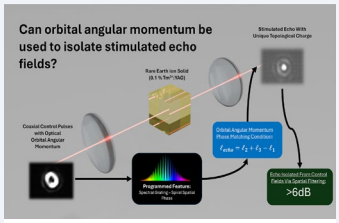
70%
Percentage of students employed locally since 2018

EXPLORE OUR RESEARCH



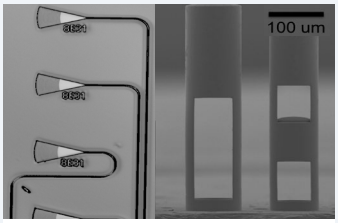
Coherent Photonics

Coherent lidar, digital holography and 3D imaging



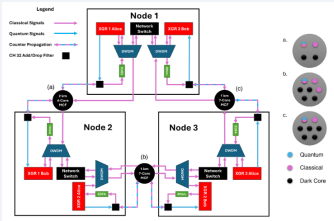
Microwave Photonics

Rare-earth ion devices and RF spectrum analysis



Integrated Photonics

Photonic chip testing and 3D micro-optic fabrication

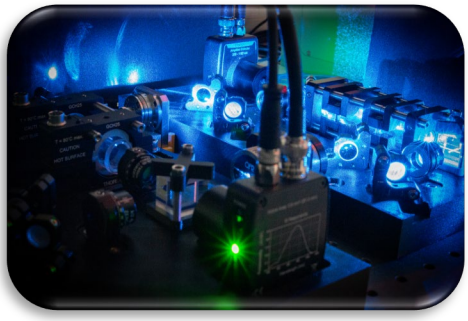


Quantum Photonics

Quantum networking, quantum sensing and entangled sources

Opportunities to Collaborate

- **Hands-on research** at every stage — from high school to PhD
- **Testing & characterization capabilities**: wide-band RF, photonic integrated circuits, electro-optics, standards development
- **Prototyping and commercialization**: packaging and TRL enhancement, 3D micro-optic fabrication



SCAN TO EXPLORE

spectrum.montana.edu

FROM LAB TO MONTANA INDUSTRY: OUR SPIN-OFFS

- BRIDGER PHOTONICS — Methane-sensing lidar
- blackmore acquired by Aurora — Autonomous freight
- LinQ PHOTONICS — Adv lidar terminals
- SA CORPORATION — Wideband RF sensors
- MONTANA INSTRUMENTS — Cryostats
- JACKSON DEMPSEY — FSO Networking

Mountains and Minds
Montana State University

Director: Dr. Krishna Rupavatharam
krishna.rupavatharam@montana.edu

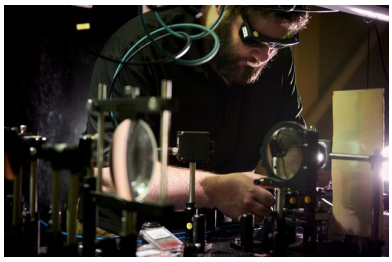
RESEARCH • INNOVATION • MENTORSHIP

Inside Spectrum Lab

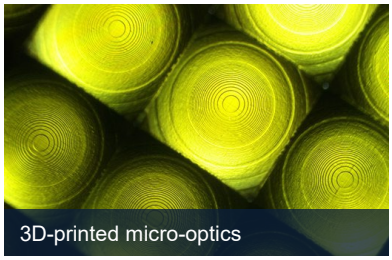
Students and researchers turning light into technology — in the lab, in the field and across Montana.

IN THE LAB


Hands-on optics & quantum research

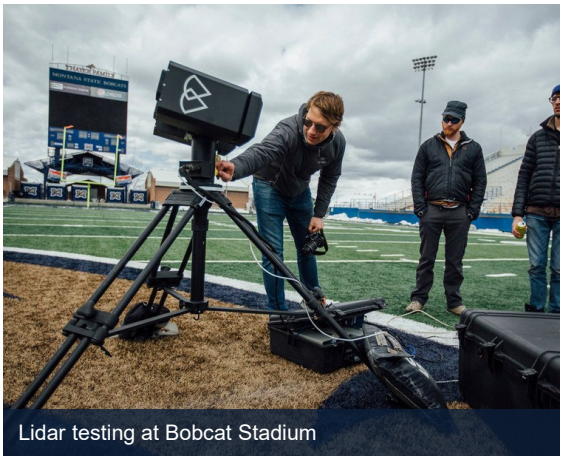



Quantum networking lab


3D-printed micro-optics



IN THE FIELD


Lidar testing at Bobcat Stadium


Aerostat platform

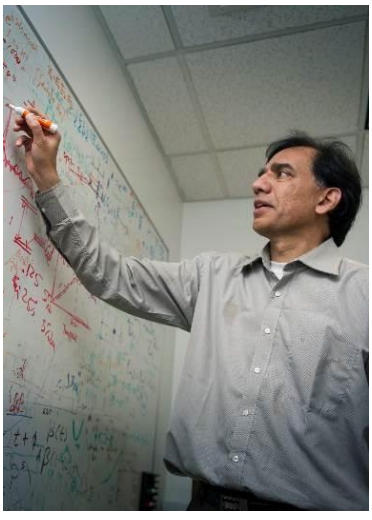

UAS flight testing

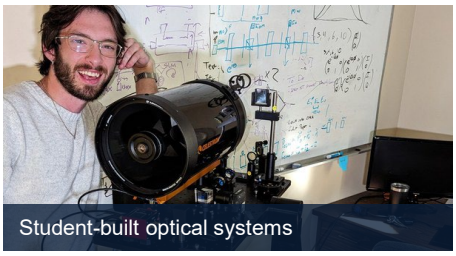



Field deployments

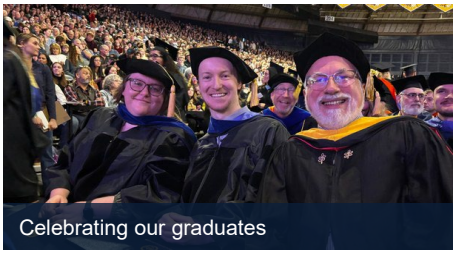
OUR PEOPLE


The Spectrum Lab team




Student-built optical systems


Building on research since 1999


Celebrating our graduates

Mountains and Minds
Montana State University

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