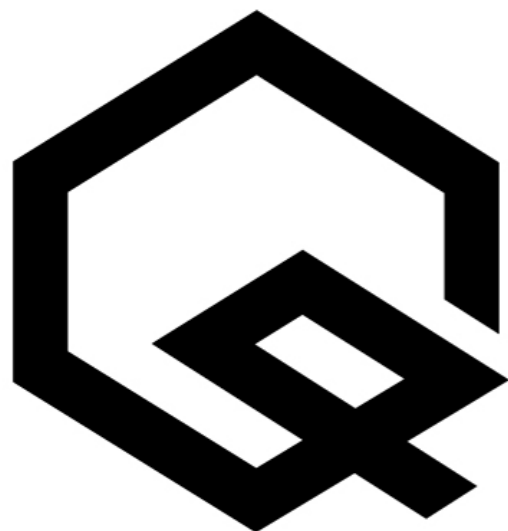
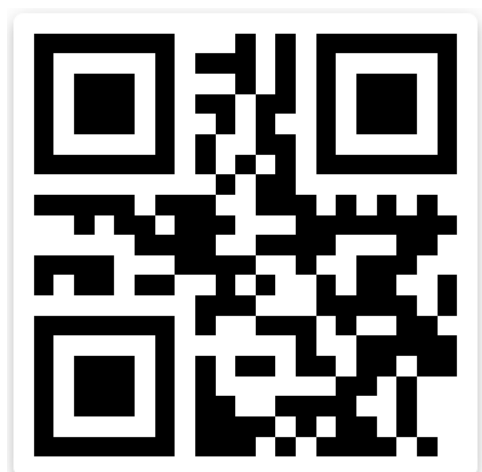




Optical Society of Southern California

**EDUCATION & OUTREACH**



**QOISC**

QUANTUM OPTICS INSTITUTE OF SOUTHERN CALIFORNIA

# Life in the QuantumOptics Age

The QOISC is a focal point for Donn Silberman's Quantum Optics Education Adventures

[International Year of Quantum Science and Technology \(quantum2025.org\)](#)

[Companies, countries battle to develop quantum computers | 60 Minutes - CBS News Dec. 3, 2023](#)

[U.S. quantum leadership may hinge on public perceptions | Brookings - Dec. 8, 2023](#)

[Long form pod cast interview](#)



Visit the OSSC website for monthly meeting info.

[Education & Career Assistance](#)

[QOISC](#)



## Education & Career Assistance

This web page has links to various career assistant and job search websites for the physics, optics, photonics and quantum fields.

More will be added as time goes on. For high school students in Orange County CA, see [Vital Link of Orange County](#)

[Download "Careers in Lasers, Optics, Fiber-Optics"](#)

[Finding colleges & universities in the Quantum Optics Age](#)

[Education & Careers - IEEE Photonics Society](#)

[Optics Education Directory 2019-2020](#)

[Apprenticeships / Internships / Mentorships](#)

[Home | Map<sup>2</sup> california \(map2apprentice.org\)](#)

[EXP - The opportunity engine \(expfuture.org\)](#)



All the pages and links are here



# 101 JOBS in optics and Photonics

3D VISION RESEARCH ENGINEER · APPLICATIONS ENGINEER · ASSOCIATE PROFESSOR · ASTRONOMER · ASTROPHOTOGRAPHER · AUTOMOTIVE OPTICAL ENGINEER · BIOMEDICAL RESEARCHER · BUSINESS DEVELOPMENT MANAGER · CHIEF EXECUTIVE OFFICER · CHIEF FINANCIAL OFFICER · CHIEF TECHNOLOGIST · CLIMATE MODELING SCIENTIST · COATING ENGINEER · COMMUNICATIONS ENGINEER · CONSULTANT · CRYSTALLOGRAPHER · DIRECTOR · DISPLAY ENGINEER · EDITOR OF SCIENTIFIC JOURNAL · ELECTRICAL ENGINEER · ENERGY SECRETARY · ENTREPRENEUR · ENVIRONMENTAL SCIENTIST · FIBER OPTIC ENGINEER · GEOSPATIAL INTELLIGENCE ANALYST · GLASS FABRICATION ENGINEER · HOLOGRAPHER · ILLUMINATION ENGINEER · IMAGE PROCESSING ANALYST · IMAGERY SCIENTIST · INDUSTRIAL LASER ENGINEER · INTEGRATED PHOTONICS ENGINEER · INTELLECTUAL PROPERTY LIAISON · INVENTOR · JOURNALIST · LAB DIRECTOR · LABORATORY TECHNICIAN · LASER FUSION SCIENTIST · LASER MANUFACTURING ENGINEER · LASER PHYSICIST · LENS DESIGNER · LIGHTING DESIGN SPECIALIST · LITHOGRAPHER · MARKETING MANAGER · MATERIALS ENGINEER · MECHANICAL DESIGNER · MEDICAL IMAGING SCIENTIST · MEDICAL INSTRUMENT DESIGNER · METEOROLOGIST · MICROFLUIDICS ENGINEER · NANOFABRICATION SCIENTIST · OPTICAL DESIGNER · OPTICAL ENGINEER · OPTICAL EXPERIMENTALIST · OPTICAL INTERFEROMETRY ENGINEER · OPTICAL METROLOGIST · OPTICAL NETWORK ENGINEER · OPTICIAN · OPTOELECTRONIC DEVICE DESIGNER · OPTOELECTRONICS ENGINEER · OPTO-MECHANICAL ENGINEER · PHOTOGRAMMETRIC ENGINEER · PHOTOGRAPHER · PHOTONICS LAB SPECIALIST · PHOTONICS RESEARCHER · PHOTOVOLTAIC (PV) DESIGNER · POSTDOCTORAL RESEARCH FELLOW · PRINCIPAL INVESTIGATOR · PRINCIPAL SYSTEMS ENGINEER · PROCESS ENGINEER · PRODUCT MANAGER · PROFESSOR · PROGRAM MANAGER · QUALITY ASSURANCE ENGINEER · R&D PRODUCT MANAGER · RADIOMETRY SPECIALIST · REMOTE SENSING SCIENTIST · RESEARCH ENGINEER · RESEARCH GROUP LEADER · RESEARCH SCIENTIST · SALES MANAGER · SATELLITE IMAGERY SPECIALIST · SCIENCE ADVISOR · SCIENCE EDUCATION SPECIALIST · SCIENCE JOURNALIST · SCHOOL TEACHER · SEMICONDUCTOR ENGINEER · SENIOR SCIENTIST · SENSORS ENGINEER · SOFTWARE ENGINEER · SOLAR PROCESS ENGINEER · SPECTROSCOPIST · STRATEGY AND INNOVATION MANAGER · STRUCTURAL ANALYST · SYSTEMS ENGINEER · TECHNICAL SALES MANAGER · TECHNICAL WRITER · TELESCOPE DESIGNER · THERMAL IMAGING ENGINEER · THIN FILM COATING ENGINEER · VENTURE CAPITALIST

From observing galaxies through massive telescopes to improving eyesight with the precision of a laser, the possibilities to improve the world through optics and photonics are virtually endless.

Pursuing a career in optics and photonics is not limited to working in a scientific laboratory. Rewarding opportunities are available in medicine and health, telecommunications, consumer technologies, aerospace, solar energy and lighting, manufacturing, and much more. With a global median salary of US\$64,000<sup>1</sup>, jobs can be found around the world. The industry also boasts an unusually high satisfaction rate, with 85% of workers saying that they enjoy their work and find it meaningful. Our future depends on technological advancement within this industry, and we rely on today's students to become tomorrow's astrophysicists and optical engineers.

Join the field of optics and photonics to make the world a better place, while ensuring a rewarding career.

*SPiE 2015 Optics & Photonics Global Salary Report*



INTERNATIONAL  
YEAR OF LIGHT  
2015

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*Join the New Collar Workforce*

BECOME A TECHNICIAN IN

# LASERS, OPTICS OR PHOTONICS

*"That [new collar] workforce will face technologies we can't yet imagine, but it will be able to embrace those technologies and lead us into the future."*

— Sherry Lassiter, Director, Fab Foundation

DEFENSE AND AEROSPACE  
REMOTE SENSING  
LASER SYSTEMS  
ELECTRONICS  
ROBOTICS  
UNMANNED AERIAL VEHICLES  
PRECISION MANUFACTURING  
SEMICONDUCTORS  
ASTRONOMY  
FORENSICS ANALYSIS  
MEDICAL  
TELECOMMUNICATIONS  
ILLUMINATION  
AUTOMOTIVE

Starting salaries  
(2 year degree):  
**\$42,000-\$57,000**

*This is not Your Father's Factory Floor*

The new collar worker embodies creativity, curiosity, and drive to have an impact on the world. They work with cool, futuristic tools and build, install, test, and maintain optical and fiber-optic equipment such as lasers, lenses, and optics systems.

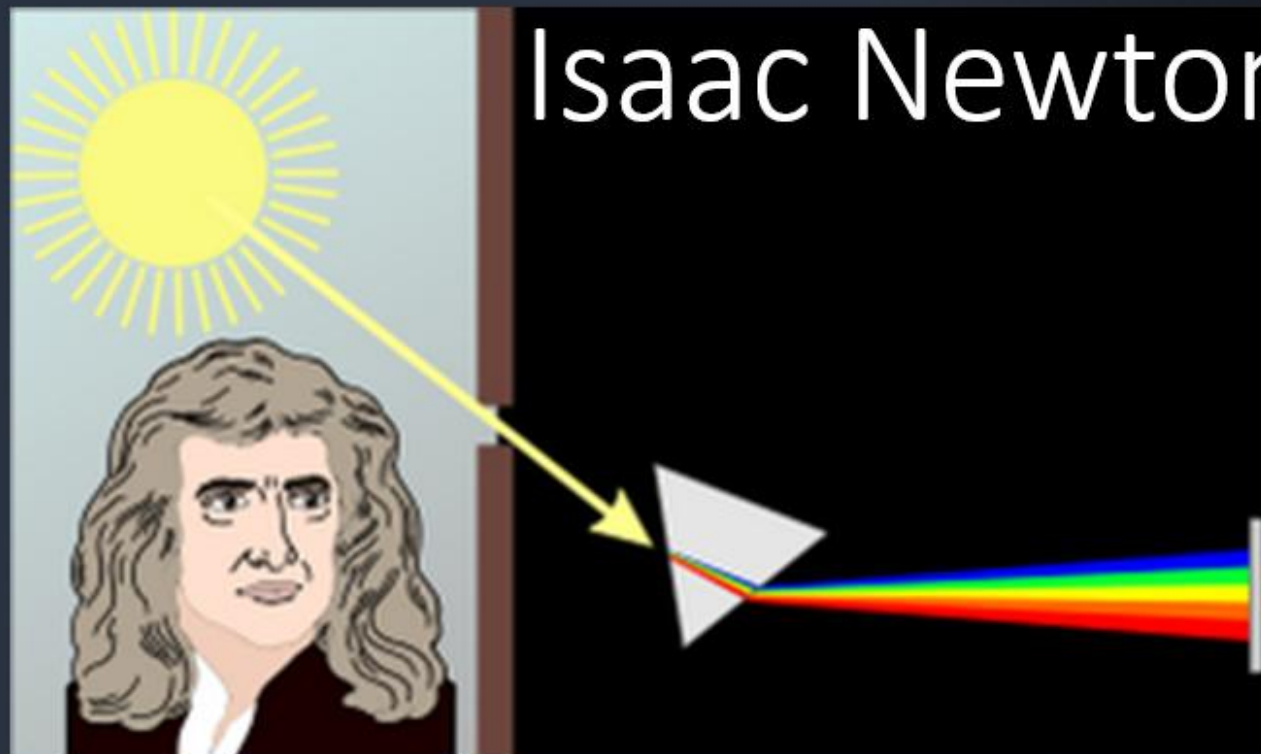
The demand for technicians is high, and employers are looking to hire now.



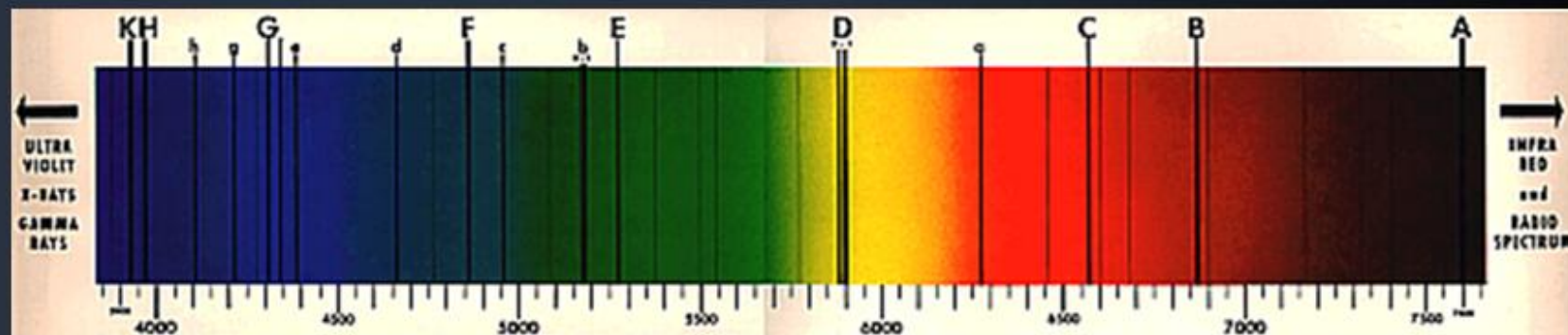
Photo credits: Background, Gettyimages (Macromex)  
Below photos (left to right): Monroe Community College  
DRS Daylight Solutions; Monroe Community College; Optimax Systems Inc.



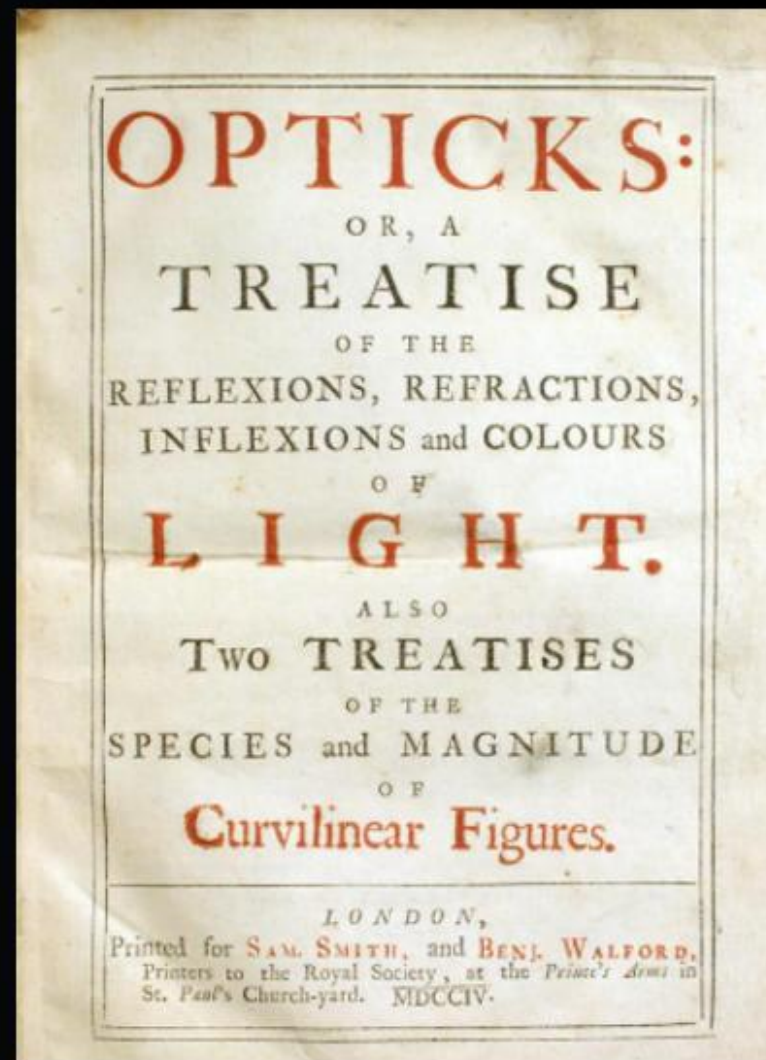
# Isaac Newton & the Prism



## The Solar Spectrum with Fraunhofer Lines



Discrete spectral lines correspond to the energy levels of various atoms that are burning in the Sun.

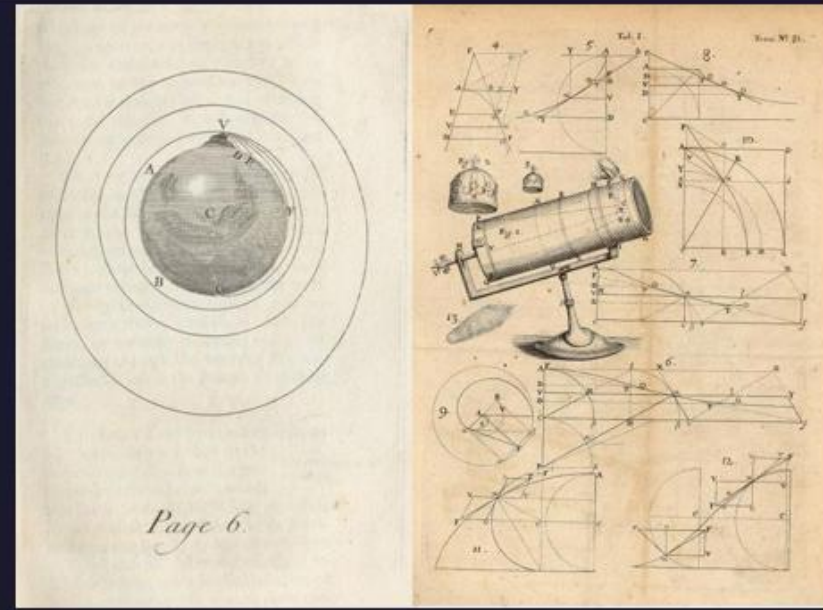


The first, 1704, edition of *Opticks: or, a treatise of the reflexions, refractions, inflexions and colours of light.*



Pages from Newton's notebook recording his astronomical observations.

## Isaac Newton - Wikipedia



The moon in 1<sup>st</sup> sign & 4<sup>th</sup> sun is in  
 strength, & rises at 11<sup>h</sup> in June. Chorus  
 signs before him in 1<sup>st</sup> same degree is  
 his first quarter. & she rises 6 hours  
 before him. In 2<sup>nd</sup> contrari sign & same  
 degree she is in 1<sup>st</sup> full & rises 12 h.  
 before him. Chorus signs after him is his  
 last quarter & she rises 6 h. after him.

Recording observations (data) by hand in a notebook. ||



# Spectroscopy & Diffraction Gratings



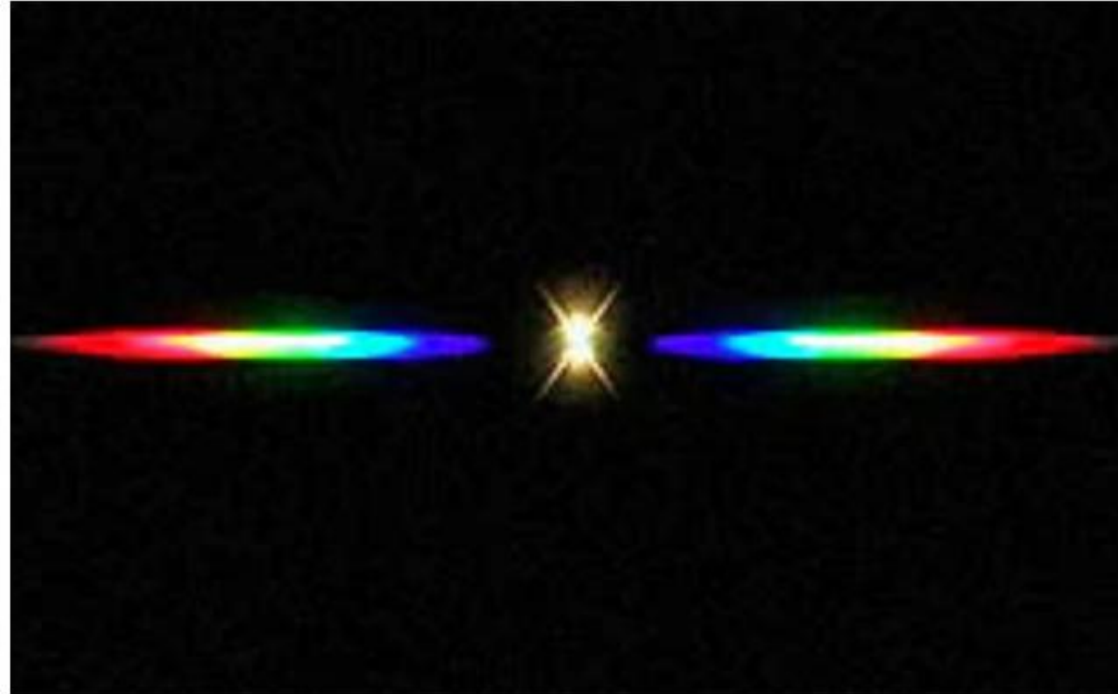
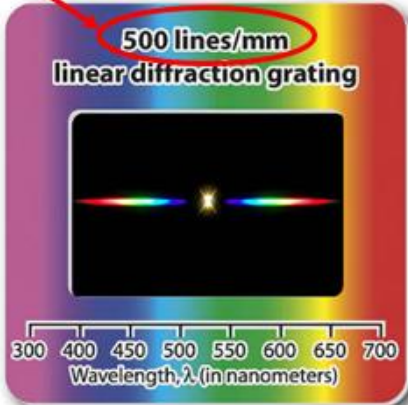
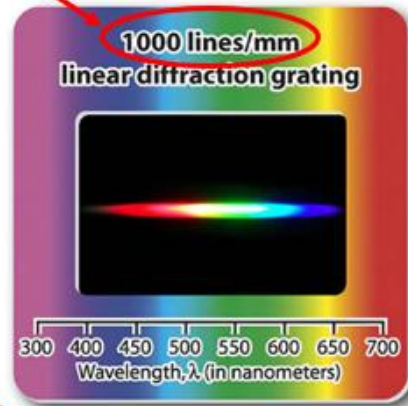
Photo by Donn Silberman

**Specialty Light Bulbs with photo taken through a diffraction grating.**

The images of the spectra are blurry compared to when you look through the grating with your eyes.

Try it on your own and draw what you see on the Spectroscopy worksheet.

# Diffraction Gratings



The grid of bumps in the plastic **diffract** the colors of the white light into the **visible spectrum**.



# Spectroscopy & Diffraction Gratings

Photo by Donn Silberman





# Spectroscopy & Diffraction Gratings

Photo by Donn Silberman



# SPECTRUM ANALYSIS

COSMIC RAYS - GAMMA RAYS - X-RAYS - ULTRA VIOLET

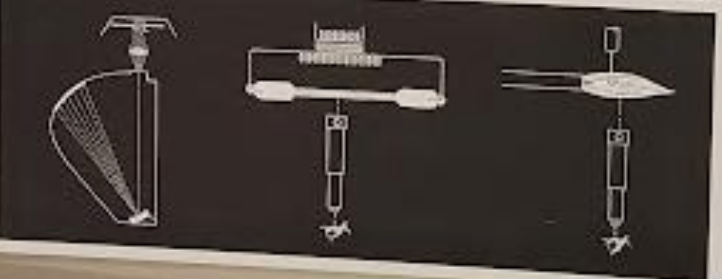
INFRA RED - SHORT WAVE RADIO - LONG WAVE RADIO

## CONTINUOUS SPECTRUM



## EMISSION (BRIGHT LINE) SPECTRA

MERCURY  
HELIUM  
LITHIUM  
THALLIUM  
CADMIUM  
STRONTIUM  
BARIUM  
CALCIUM  
HYDROGEN  
SODIUM

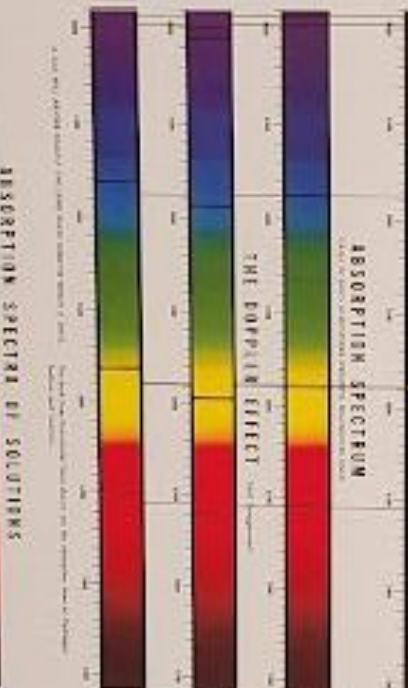


## SOLAR SPECTRUM

RECEDING  
EDGE OF SUN

APPROACHING  
EDGE OF SUN

THE DOPPLER EFFECT  
The Doppler effect is the change in frequency or wavelength of a wave in relation to an observer moving relative to the source of the wave. It is named after the physicist Christian Doppler, who proposed it in 1842.



## ABSORPTION SPECTRA OF SOLUTIONS

DIDYMIUM GLASS  
CHLOROPHYLL  
OXYHEMOGLOBIN



WABASH INSTRUMENT CORPORATION



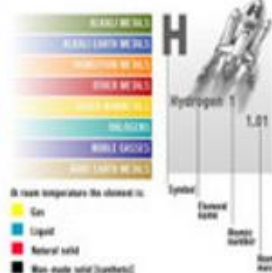
# PERIODIC TABLE of the ELEMENTS

## DMITRI MENDELEYEV (1834 - 1907)

The Russian chemist, Dmitri Mendeleev, was the first to observe that if elements were listed in order of atomic mass, they showed regular (periodical) repeating properties. He formulated his discovery in a periodic table of elements, now regarded as the backbone of modern chemistry.

The crowning achievement of Mendeleev's periodic table lay in his prophecy of then, undiscovered elements. In 1869, the year he published his periodic classification, the elements gallium, germanium and scandium were unknown. Mendeleev left spaces for them in his table and even predicted their atomic masses and other chemical properties. Six years later, gallium was discovered and his predictions were found to be accurate. Other discoveries followed and their chemical behaviour matched that predicted by Mendeleev.

This remarkable man, the youngest in a family of 17 children, has left the scientific community with a classification system so powerful that it became the cornerstone in chemistry teaching and the prediction of new elements ever since. In 1955, element 101 was named after him: Mendelevium.



# PERIODIC TABLE of the ELEMENTS

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DEPARTMENT OF  
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Tel: 415.774.1000 Fax: 415.774.1001

He  
Helium 2  
4.00

At room temperature the elements are:

- Gas
- Liquid
- Solid
- Non-metal solid (metalloid)

1 H Hydrogen 1.01	2 He Helium 4.00																	3 Li Lithium 6.94	4 Be Beryllium 9.01	5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18																										
11 Na Sodium 22.99	12 Mg Magnesium 24.31	13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulphur 32.06	17 Cl Chlorine 35.45	18 Ar Argon 39.95													19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.88	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.38	31 Ga Gallium 69.72	32 Ge Germanium 72.64	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80														
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium 98	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29																	55 Cs Caesium 132.91	56 Ba Barium 137.33	Lanthanide Series															
87 Fr Francium 223	88 Ra Radium 226	Actinide Series																89 Ac Actinium 227	90 Th Thorium 232	91 Pa Protactinium 231	92 U Uranium 238	93 Np Neptunium 237	94 Pu Plutonium 244	95 Am Americium 243	96 Cm Curium 247	97 Bk Berkelium 247	98 Cf Californium 251	99 Es Einsteinium 252	100 Fm Fermium 257	101 Md Mendelevium 258	102 No Nobelium 259	103 Lr Lawrencium 262																			

FEST  
CORPORATION

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Dr. J. S



# Diffraction

## Atomic Emission Spectra



Hg

Lithium

Li



Cd

Strontium

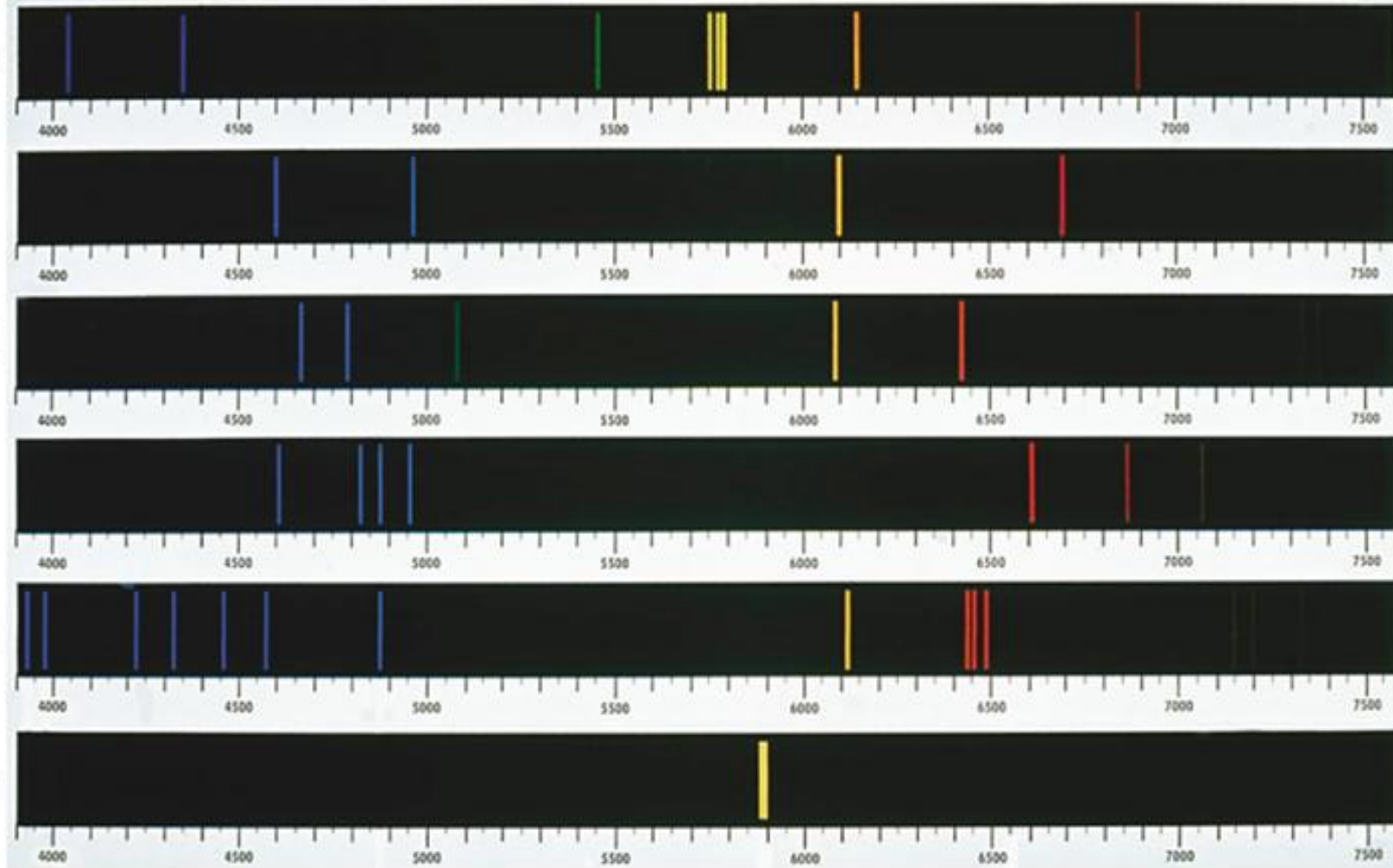
Sr



Ca

Sodium

Na



Mercury



Cadmium



Calcium

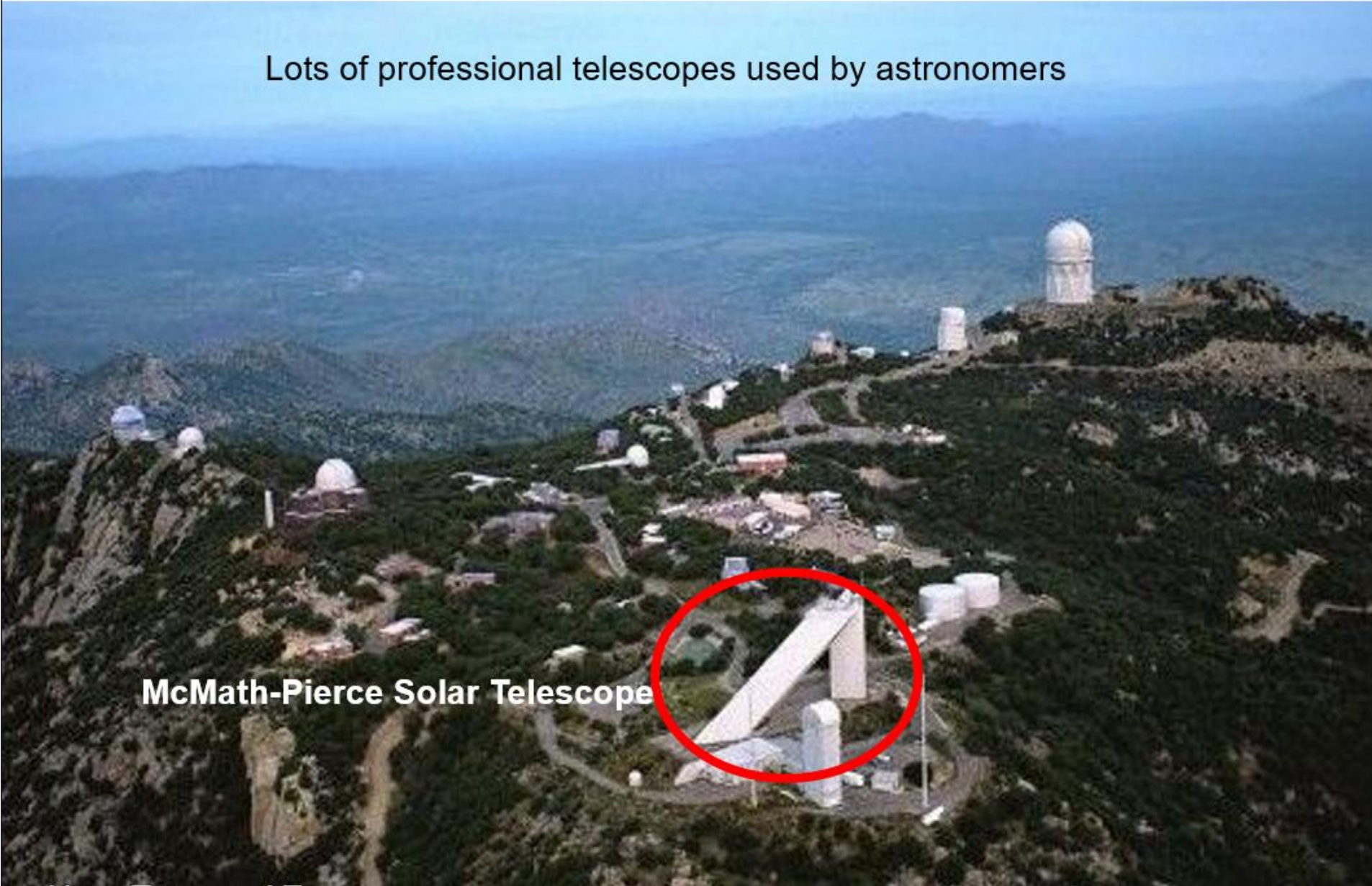




Lots of professional telescopes used by astronomers

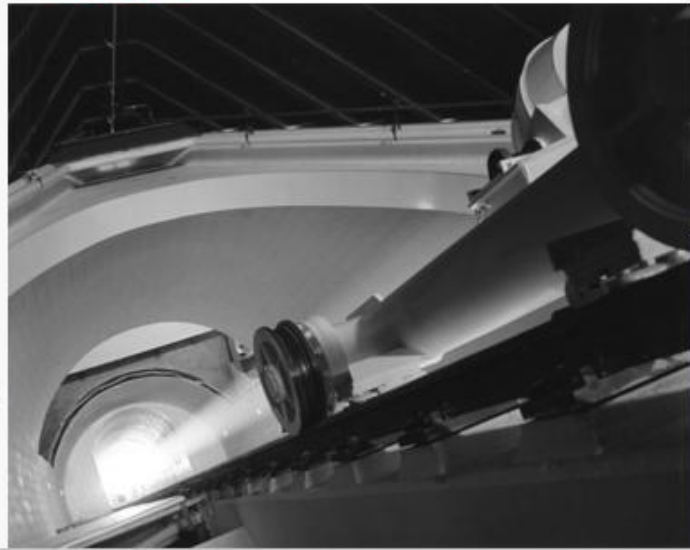
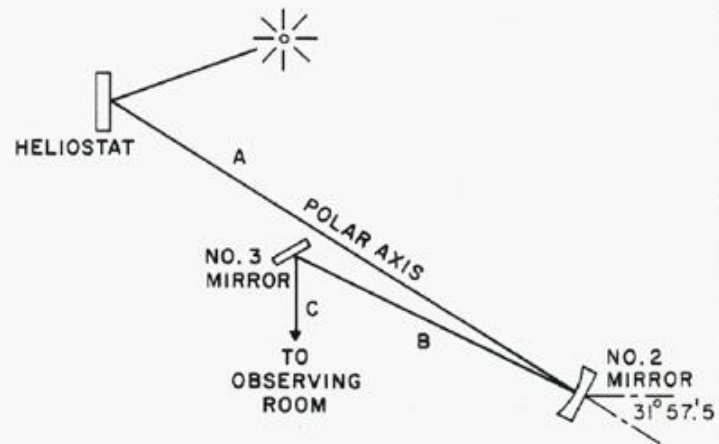
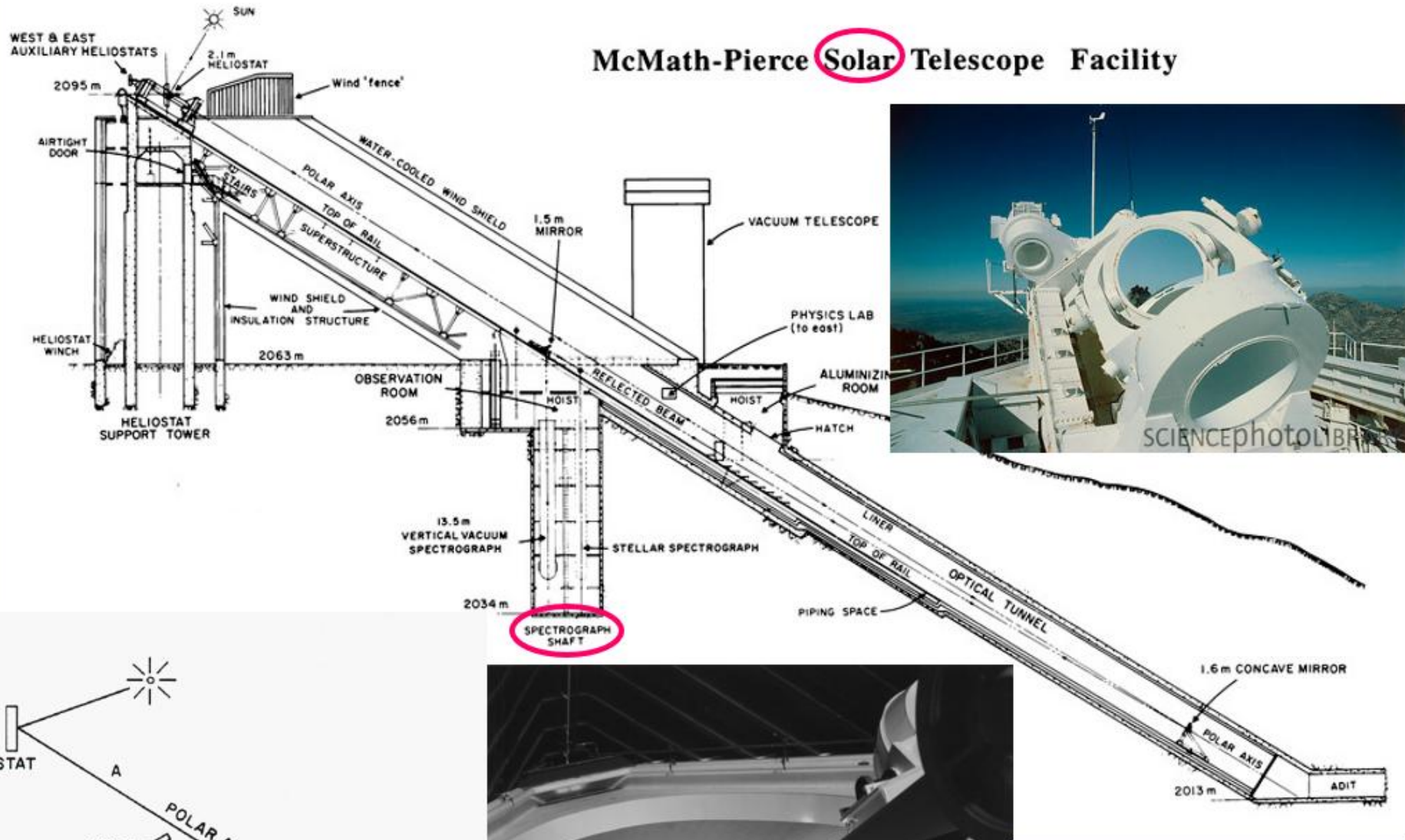
**McMath-Pierce Solar Telescope**

Near Tucson, AZ

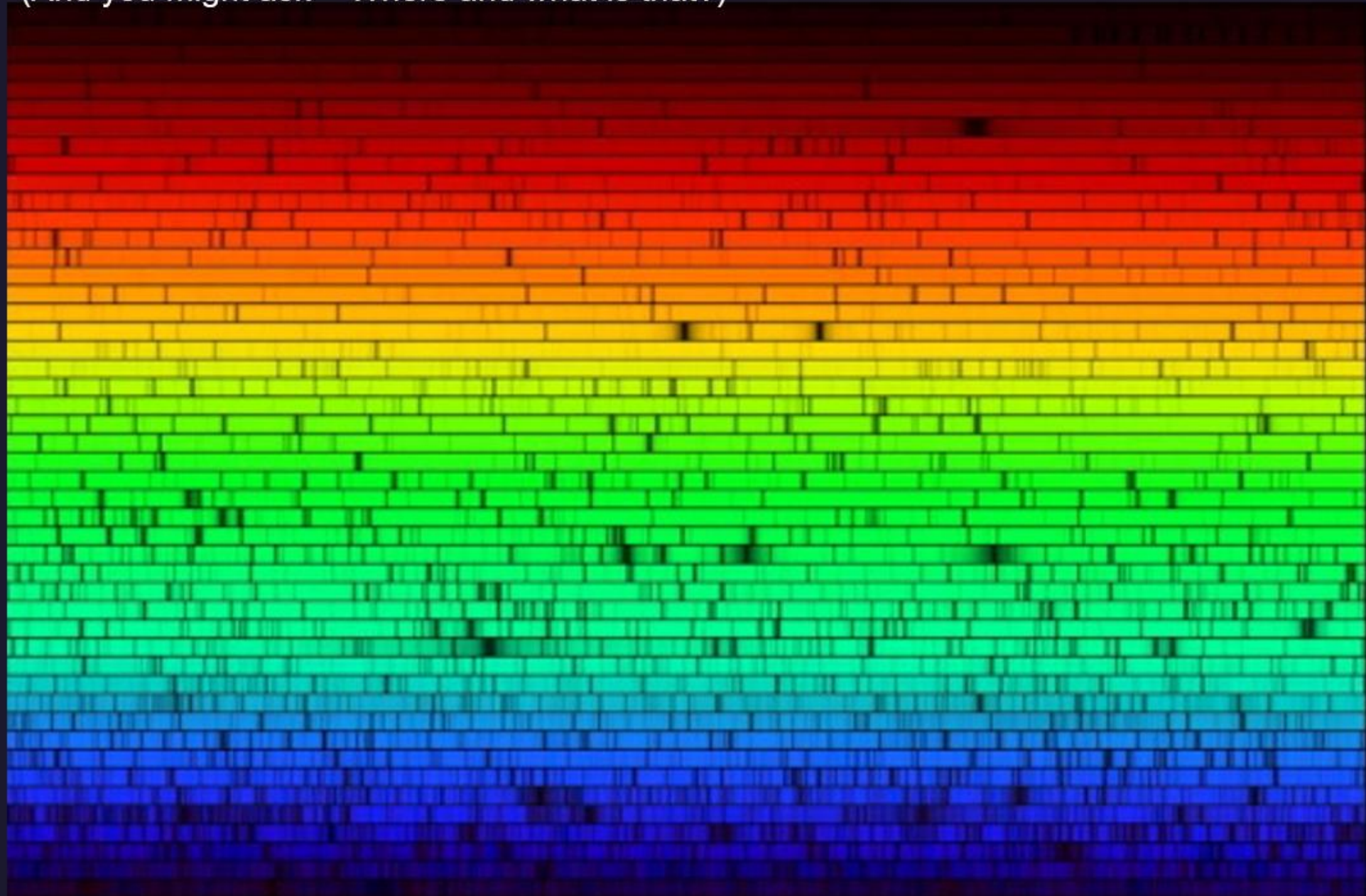




# McMath-Pierce **Solar** Telescope Facility

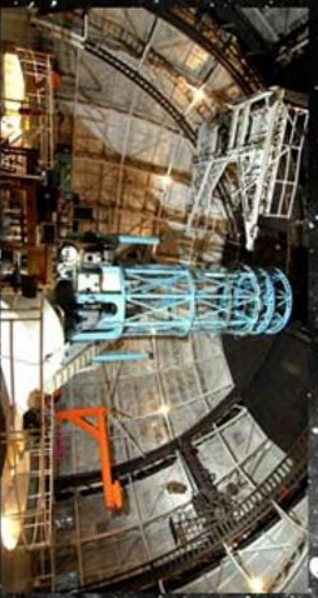


Famous very high-resolution Solar Spectrum taken at Kitt Peak's Solar Observatory  
Using the McMath-Pierce Solar Telescope.  
(And you might ask – Where and what is that?)

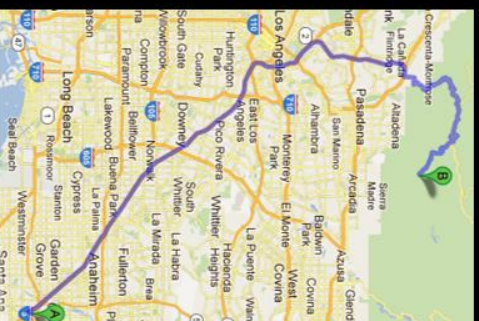




# Mount Wilson Observatory



A Second Century for America's Observatory



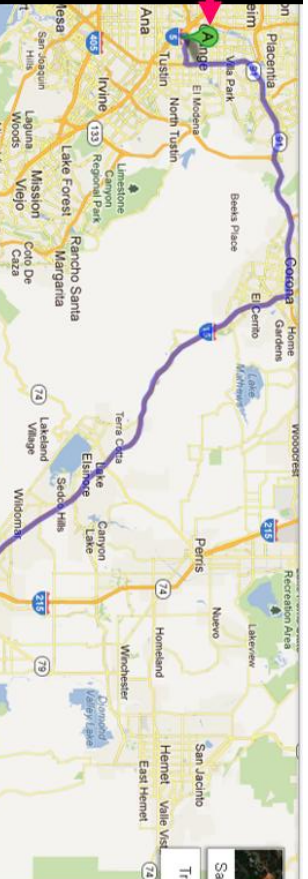
1.5+ hour drive

Open to the public.

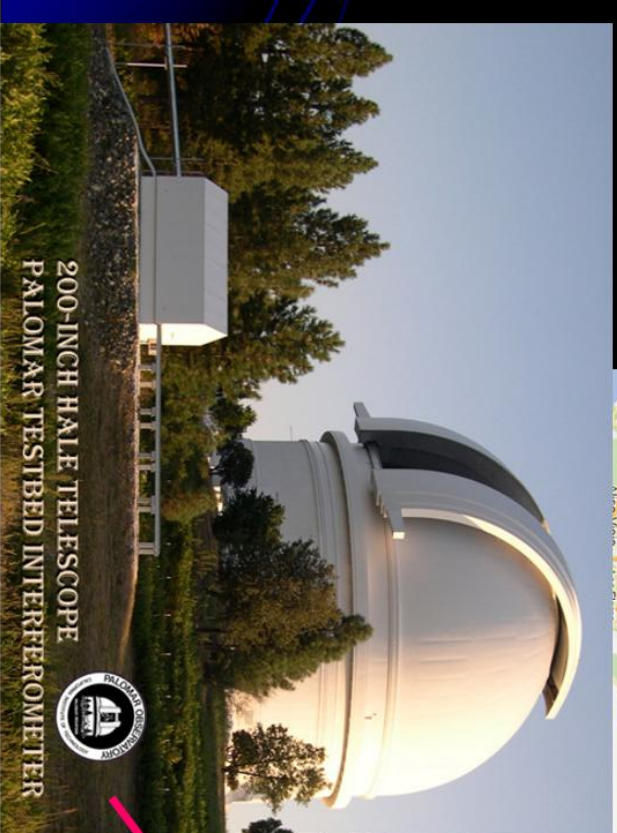
Check out their websites at:

[Welcome to Palomar Observatory \(caltech.edu\)](http://caltech.edu)

[Mount Wilson Observatory | \(mtwilson.edu\)](http://mtwilson.edu)



~3-hour drive



200-INCH HALE TELESCOPE  
PALOMAR TESTBED INTERFEROMETER



## PRE-QUANTUM MYSTERIES

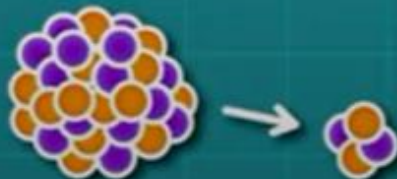
### ATOMIC SPECTRA



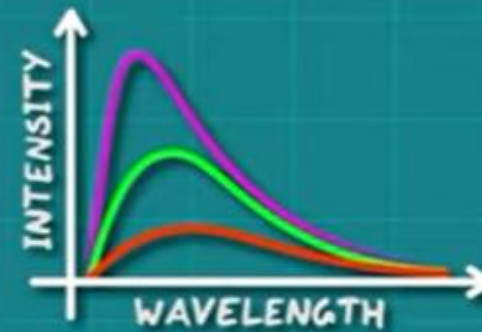
### THE STABLE ATOM



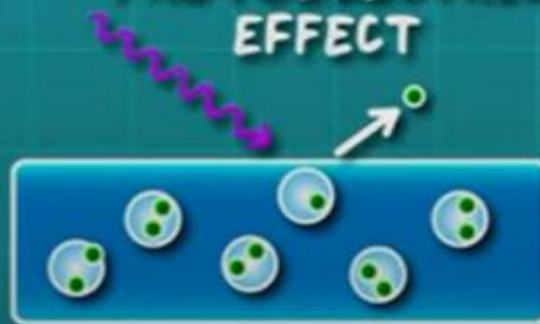
### RADIOACTIVITY



### BLACKBODY RADIATION



### PHOTOELECTRIC EFFECT





# Education & Careers in the 1<sup>st</sup> Quantum Revolution

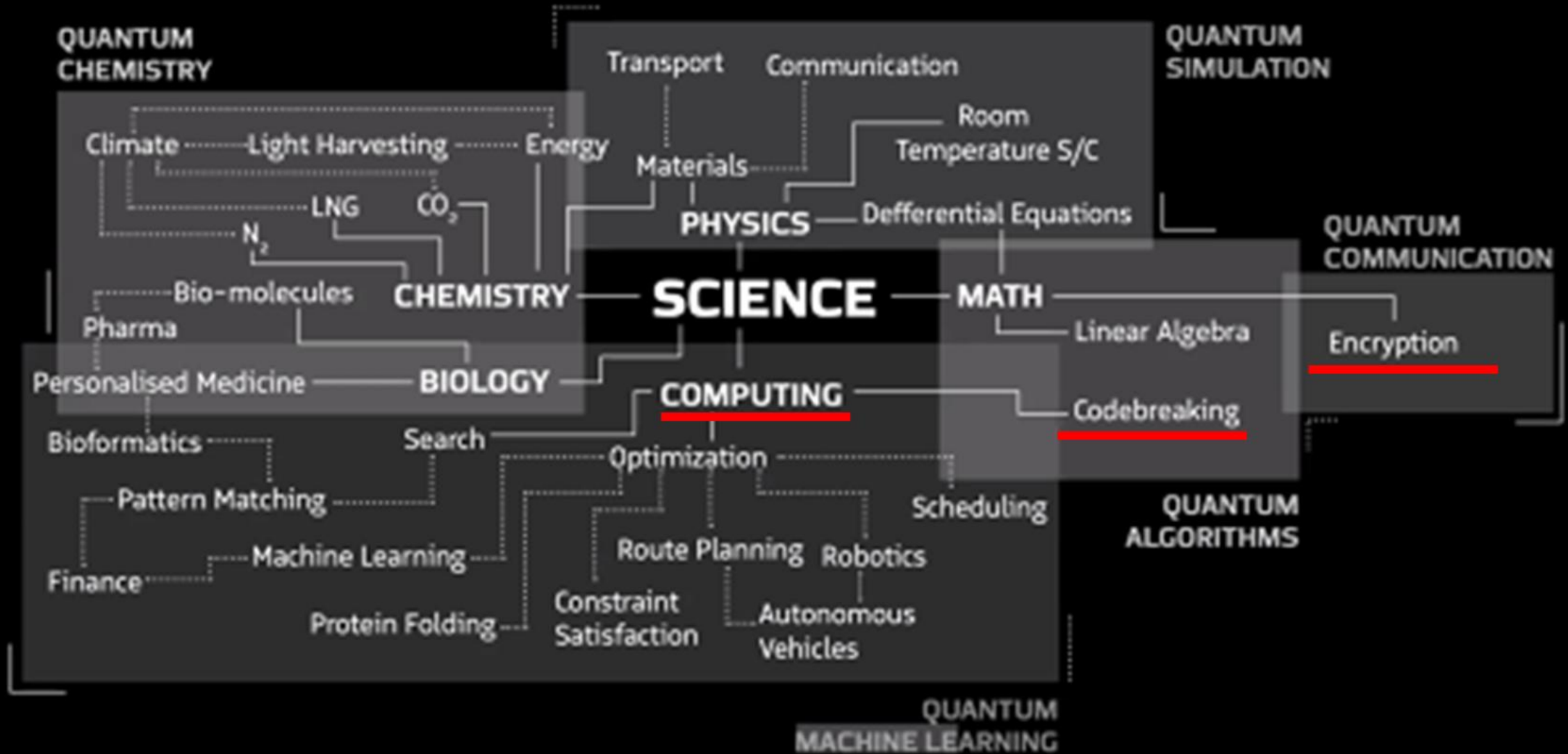
Accounting and Consulting  
Admin Support  
Customer Service  
Data Science and Analysis  
Design and Creative  
Engineering and Architecture  
IT & Networking  
Legal  
Sales and Marketing  
Translation  
Web, Mobile, & Software Development  
Writing

**2nd**

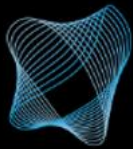


**These are true for most all industries and will apply to the 2<sup>nd</sup> Quantum Revolution too !!**

# Why should you care?? Education and career opportunities.







Center for  
Quantum Networks  
*NSF Engineering Research Center*

<https://cqn-erc.org/>

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# Building the Quantum Internet

CQN is developing the entire technology stack to reliably carry quantum data across the globe, serving diverse applications across many user groups simultaneously... spurring new technology industries and a competitive marketplace of quantum service providers and application developers.



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Thrust 2: Quantum Subsystem  
Technologies

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Thrust 4: Societal Impacts of the Quantum  
Internet

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# MAKING THE WORLD A BETTER PLACE

## Optics, Lasers, Photonics & Quantum



THINK GLOBAL – ACT LOCAL



**SUSTAINABLE DEVELOPMENT GOALS**

United Nations Association Orange County





# 2024-25 Introduction to Quantum Computing Course with Google

## Quantum AI



Taught by PhD researchers from **Stanford University**

This is a first-of-its kind course designed to make quantum computing accessible to high school students and above. With live instruction and hands-on labs, students have the chance to learn from industry experts and join a global community of future STEM leaders. Quantum computing will impact industries from healthcare to finance to cybersecurity, and **we want today's high school students to be prepared to lead the next computing revolution.**

[Apply as a Student](#)

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TRAINING THE FUTURE **DIVERSE**  
QUANTUM WORKFORCE





## Introduction to Quantum Computing

### Semesters I & II

- Be among the first students in the world to learn quantum computing
- Learn in-depth skills applying quantum networks and algorithms
- Discover the magic of quantum hardware
- Meet renowned quantum experts
- Go on virtual quantum lab tours
- Run code on a quantum computer!

[Learn More](#)[Register](#)

TRAINING THE FUTURE DIVERSE  
QUANTUM WORKFORCE



## Foundations of Quantum Computing

### Semester I

- Explore the world of quantum
- Learn foundational skills in quantum mechanics using qubits, superposition and entanglement concepts
- Discuss ethics and biases to use quantum responsibly
- Develop Python skills
- For-credit course
- Options to continue on to Semester II

[Learn More](#)[Register](#)



## **Medical or Nursing Applications:**

[UV lamps used to disinfect surgical operating rooms ↗](#)

[Using MRI spectroscopy to detect tumors ↗](#)

[A phone app that uses light reflection to help determine if a toddler has an eye tumor ↗](#)



Learn More: Links to all applications here.

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[U.S. Spy Agencies Seek Tech to Identify Deadly Chemicals From 30 Meters Away ↗](#)

## **Forensics:**

[Anyone interested in Art Forgery ↗](#)

[Using bloodstains at crime scenes to determine age of a suspect or victim ↗](#)

## **Engineering:**

[Quantum Engineering - What is it? ↗](#)

[Spectroscopy can be useful for engineers and material scientists ↗](#)

[Civil engineers use light/ lasers to study icy roads ↗](#)

## **Agriculture/Dairy:**

[Spectroscopy in agriculture/ farming](#)

[Energy Content of Silage](#)

[Dairy/ Milk](#)

[Grain fed beef or grass fed beef](#)

[Fake or old beef products](#)

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[The Basics of a Quantum Computer](#)

[The push for Quantum Computers](#)

[Are You Ready for the Quantum Computing Revolution?](#)

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[UV lamp used to disinfect water](#)

[Using Infrared Light to help manage wildlife](#)

[Environmental Analysis/ Science](#)

[Water Contamination](#)

## **Geology:**

[Spectral Geology](#)

[Studying geological samples using high resolution spectroscopy](#)

## **Ice cores:**

[Laser based systems for gases and water isotopes from ice cores](#)

## **Physical and Occupational Therapy:**

[Using MRI to help patients recover from strokes](#)

[Using IR spectroscopy to prevent ACL tears](#)



Learn More: Links to all applications here.





# Post-Quantum Cyber Security

We are an innovative leader in the new realm of Post-Quantum Cyber Security. [Learn more.](#)

Rethinking Cybersecurity



## What is the Impact of Quantum Computing on Cybersecurity?

Another Reason to Act Now: Harvest Now, Decrypt Later



QUANTUMXCHANGE™





# What is WDM?

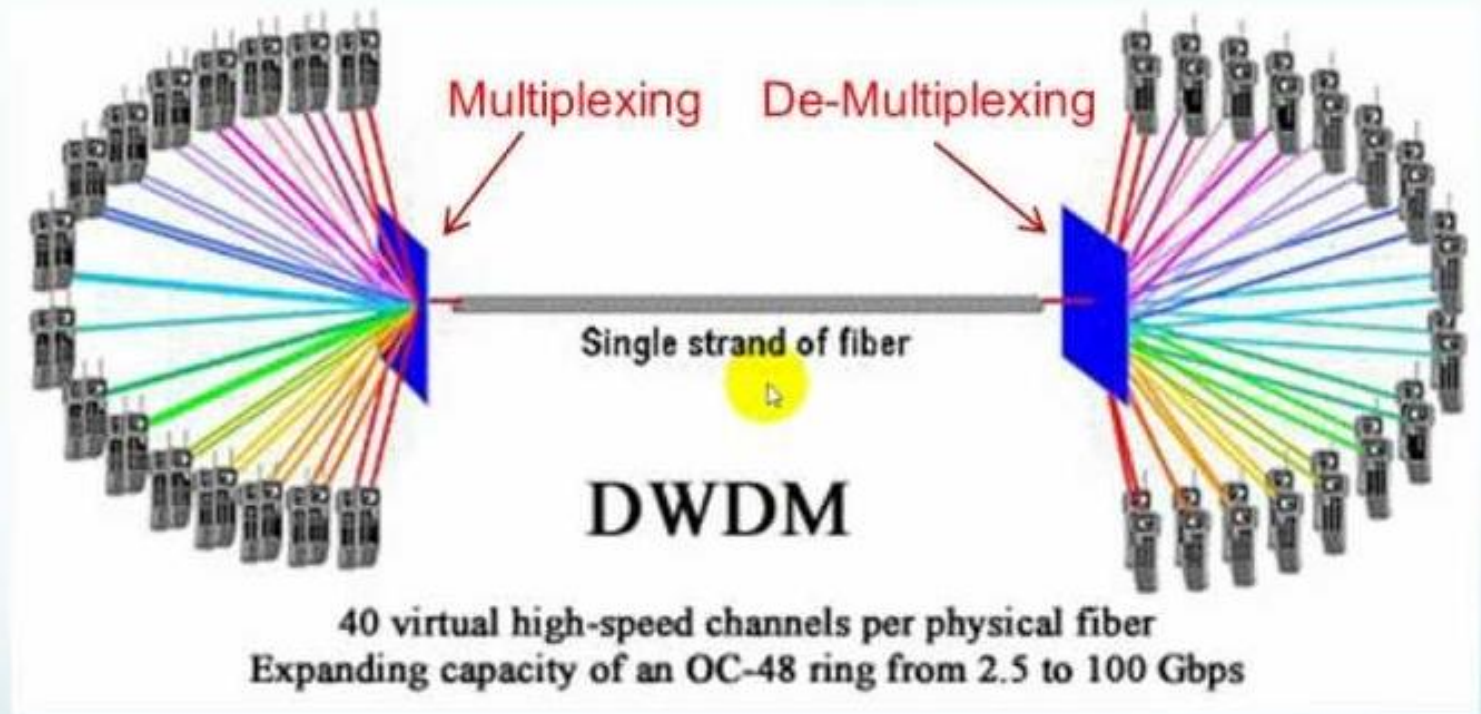
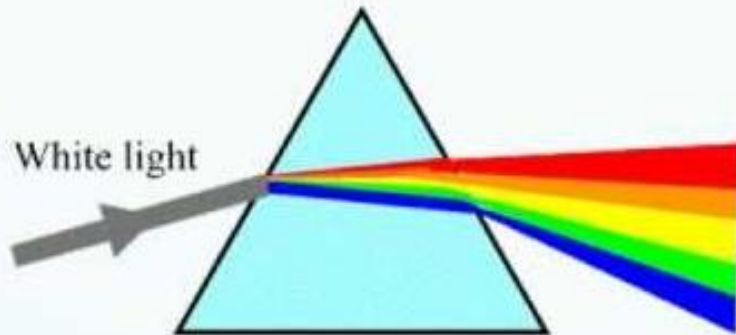


New Tutorials

WDM = Wavelength Division Multiplexing

Video Tutorial

Refraction through a prism



WDM is used on fiber optics to increase the capacity of a single fiber



Fiber Optics For Sale Co.  
COMPLETE SUPPLY SOLUTIONS

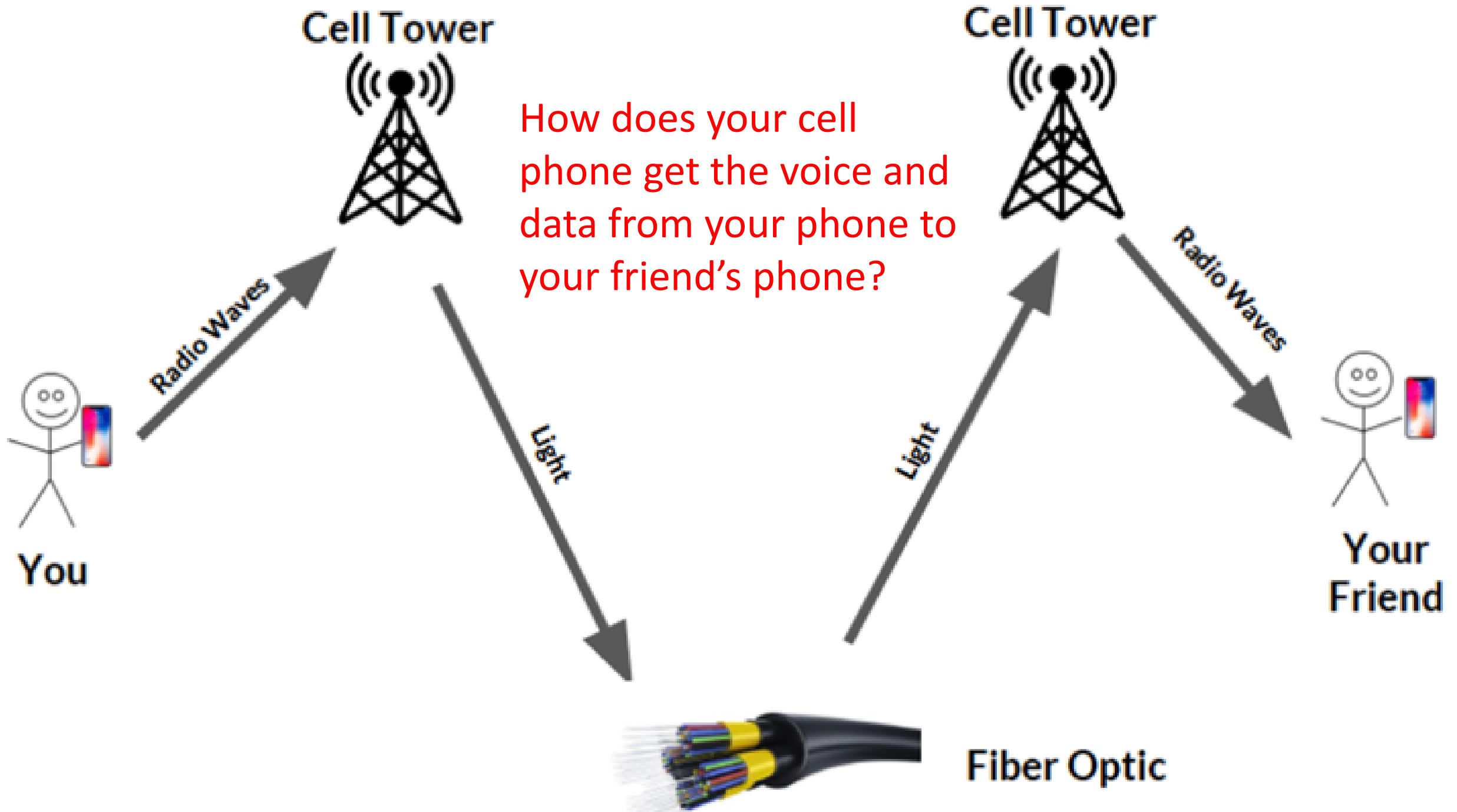




## Submarine Fiber-Optic Cable Trivia

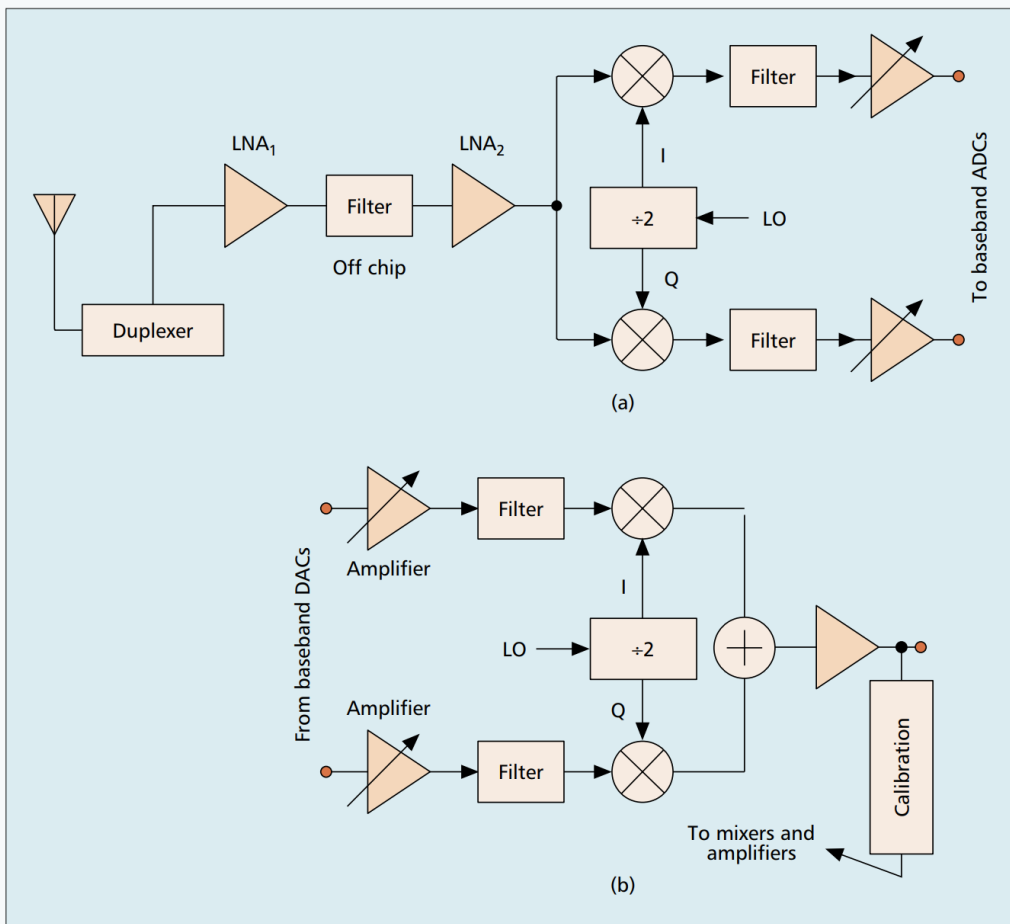


**Fiber Internet How It Works – Get A  
Quick Guide to Fiber Optic Internet**









■ Figure 5. a) Receiver and b) transmitter architectures for WCDMA [7, 8].

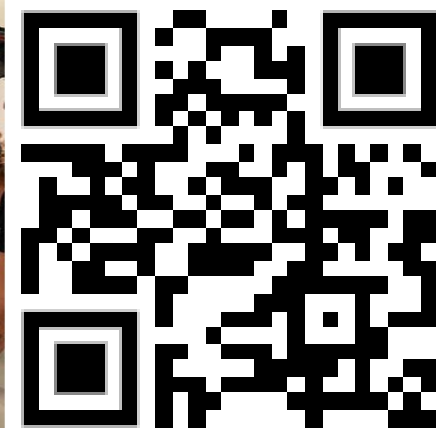


5G Fixed Wireless Access Platform gen 2



# Fiber Optic Training

Course Overviews



## Fiber Optic Certifications



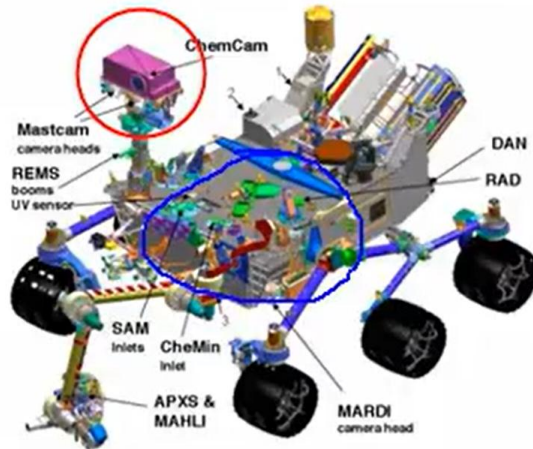
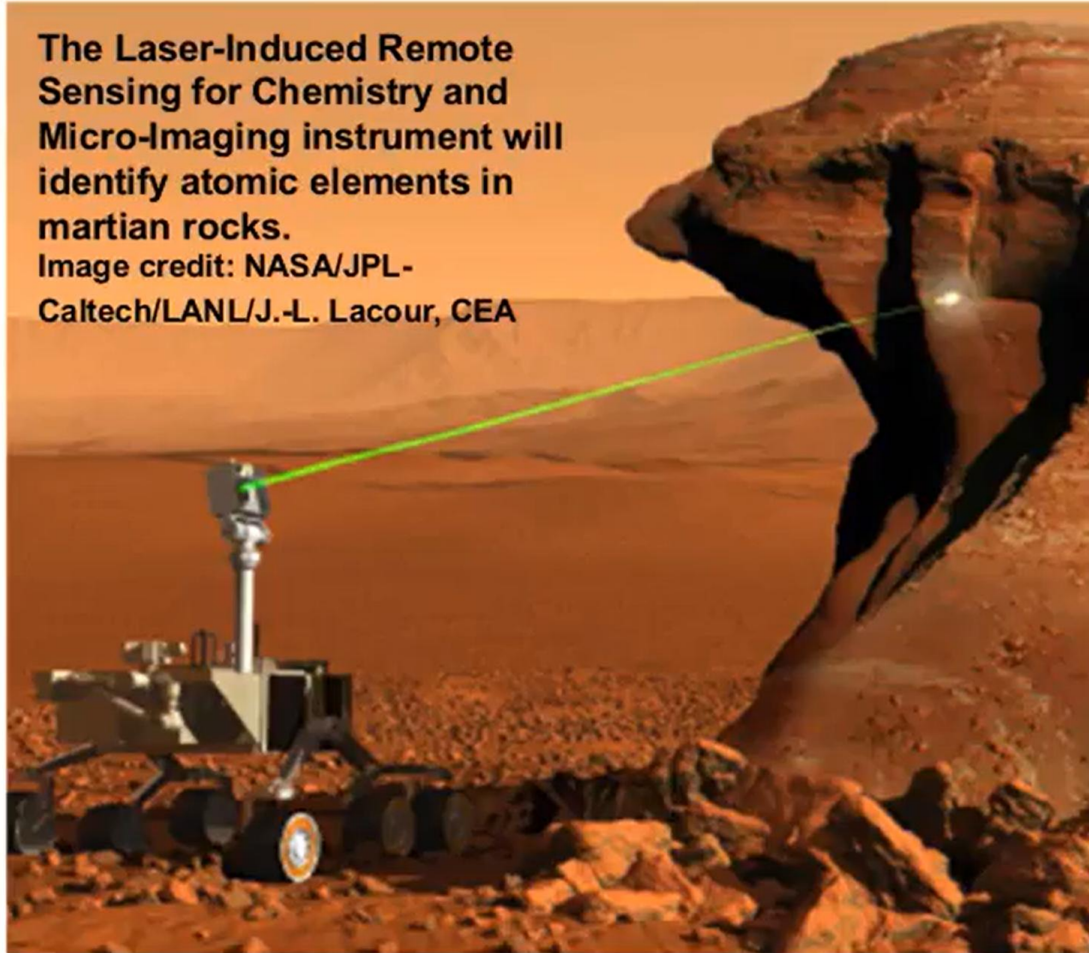


# LASERS ON MARS

## Chemistry & Camera (ChemCam)



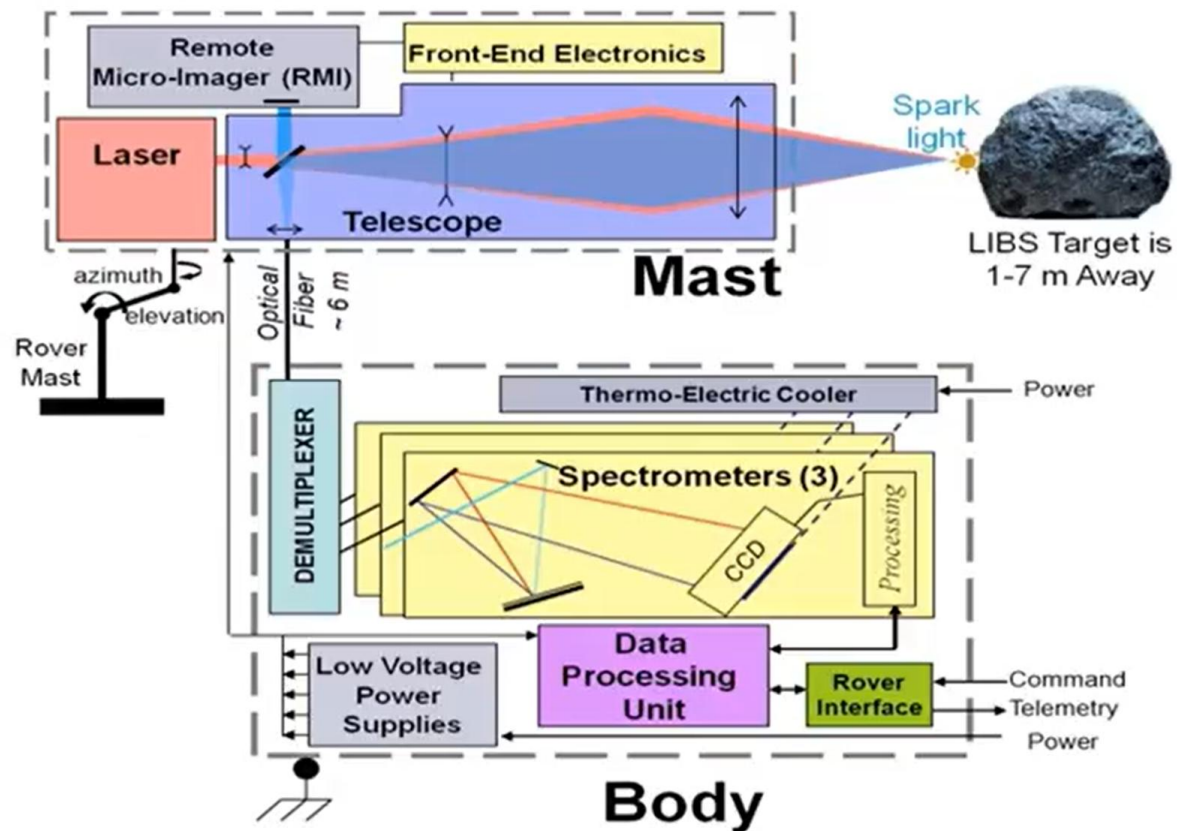
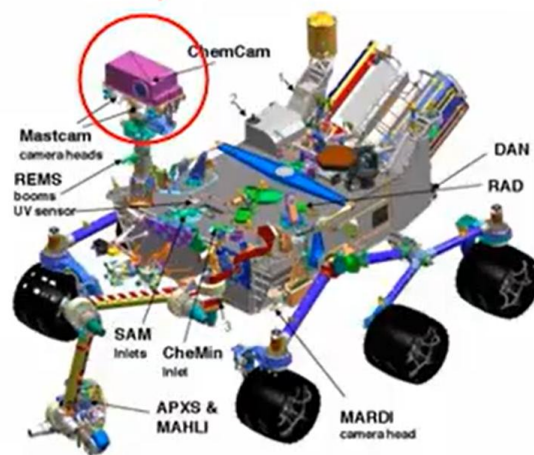
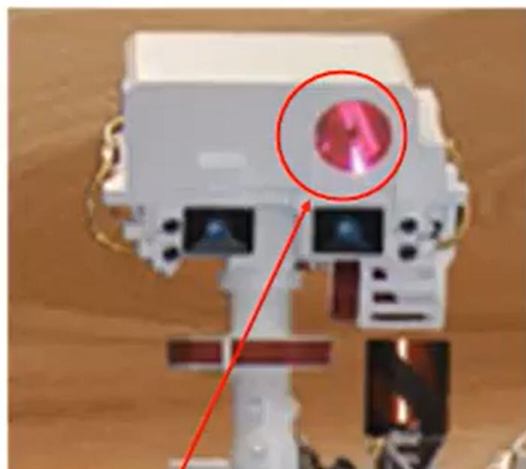
The Laser-Induced Remote Sensing for Chemistry and Micro-Imaging instrument will identify atomic elements in martian rocks.  
Image credit: NASA/JPL-Caltech/LANL/J.-L. Lacour, CEA





# LASER SPECTROSCOPY ON MARS

## Chemistry & Camera (ChemCam)

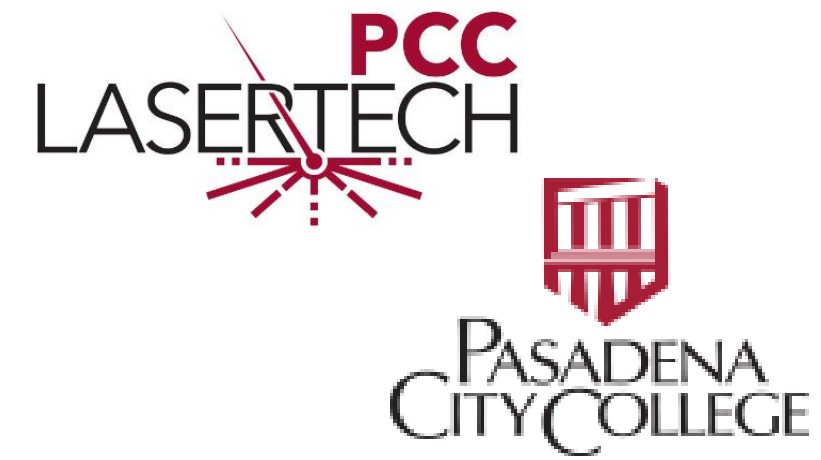




## **OPTICS PROGRAMS**

**CHOOSE FROM TWO ONLINE CERTIFICATE TRACKS:  
OPTICAL ENGINEERING OR OPTICAL INSTRUMENT DESIGN**





Be Laser-Focused

**PCC LaserTech**

Part of the STEM Career Community →



**What is LaserTech?**





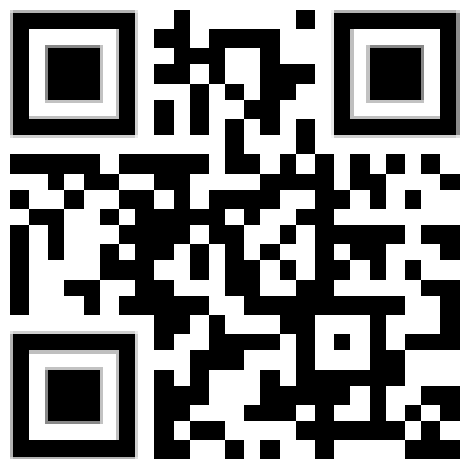


DISCOVER / CREATE / EDUCATE

WELCOME TO THE BECKMAN LASER INSTITUTE & MEDICAL CLINIC

FROM BENCHTOP TO BEDSIDE

New laser therapies for diseases that were previously  
untreatable, improving lives for tens of millions of patients  
worldwide.







# 2024 Women in Optics notebook

Celebrating its 20th year, the 2024 SPIE Women in Optics notebook serves as an inspiration and resource for those considering careers in optics, photonics, and other STEM fields.



# Optical Women's Association.



## OWA Mission

To enhance and promote the leadership role of women in the optical industry through networking, education, and peer support.



A woman with long dark hair, wearing a white lab coat over a black top and yellow safety goggles, is working on a complex photonic device. She is holding a thin, flexible fiber optic cable. The device has various metal components, lenses, and a small circular display on the right. The background is dark, and the scene is lit with a warm, yellowish light.

Women in  
photonics



**IEEE Women in Photonics**



# GIRLS IN QUANTUM

QUANTUM ENGINEER & ACTIVIST

**SANSKRITI DEVA**

ON LEADING  
THE QUANTUM  
GENERATION



@girlsinquantum www.girlsinquantum.com

ABOUT US

## Our Purpose

We want to provide free educational resources for girls and students around the world so they can get involved in the field of Quantum Computing. We want to bring them the opportunities they need to collaborate and, thus, make an impact by strengthening their abilities and talents.

*Elisa Torres Durney*

Co-Founder & CEO





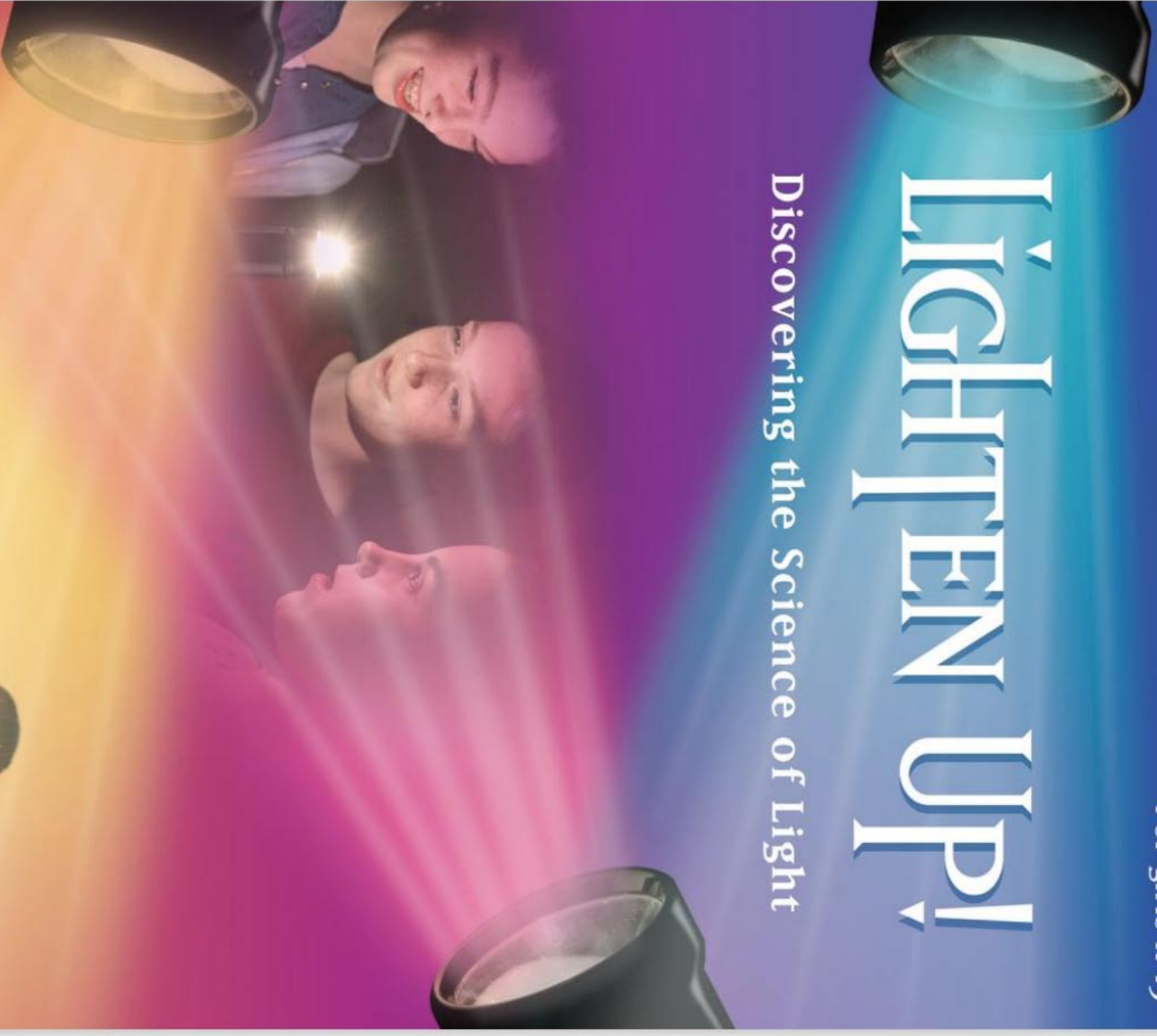


SCAN TO DOWNLOAD THIS DOCUMENT

For girls 11-15

# LIGHTEN UP!

Discovering the Science of Light



Girl Scouts.

OSA

Foundation



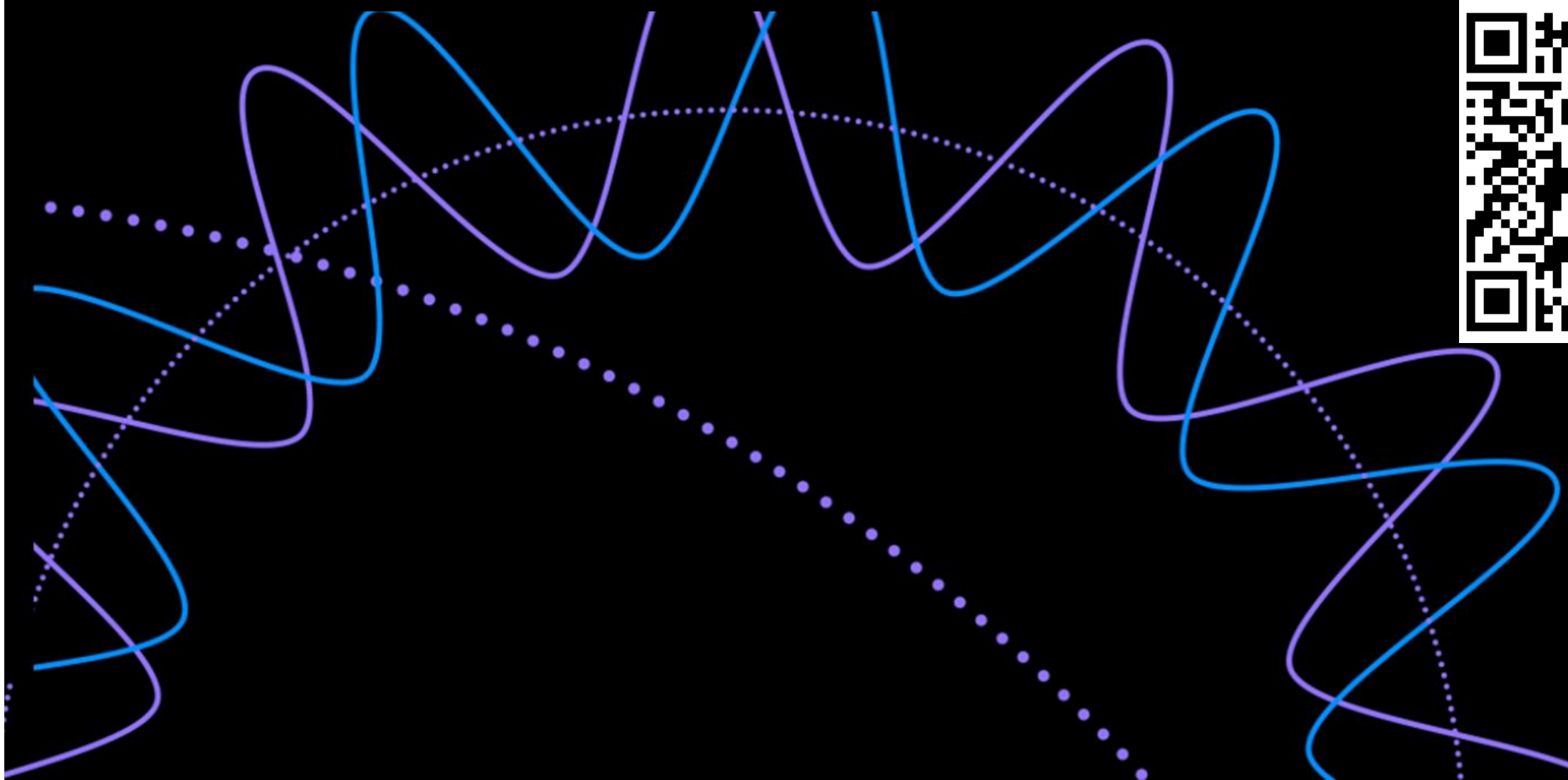
# OPTICA

Formerly  
OSA

Foundation

## Optica Women Scholars

Empowering the next generation of women leaders  
in optics and photonics.







# PTICS

Your connection  
to fiber broadband  
**intelligence**

POWERED BY  
**Fiber  
Broadband**  
ASSOCIATION

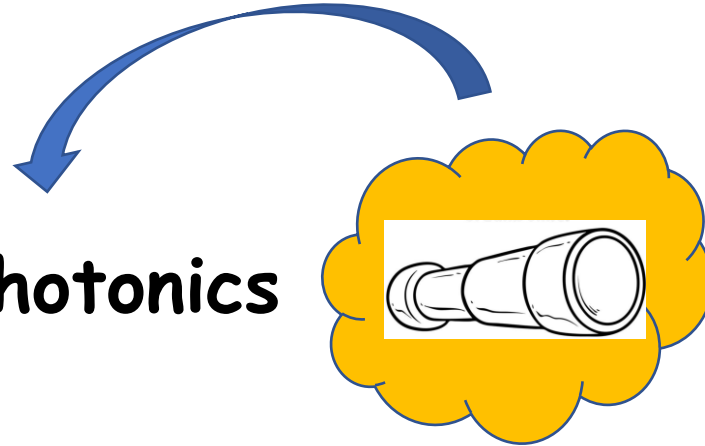


INNOVATION

## Leading Women in Fiber Discuss Their Careers, Advice for the Future



# Lasers, Optics & Photonics



Lasers, optics & photonics are used in many industries and research areas. These include medical, communications, computers, automotive, aerospace, astronomy, forensics, remote sensing, clean energy, climate monitoring and many more.



**We know what the sun and stars are made of because the \_\_\_\_\_ that reaches us is analyzed using prisms and \_\_\_\_\_ gratings.**



QR Code to download the pdf version of these slides





# QUANTUM CHESS

[Learn More](#)





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All Games > Strategy Games > Quantum Chess

## Quantum Chess

Community Hub



Completely change the strategy of the age old game of chess with quantum physics!

ALL REVIEWS: **Mixed** (45)

RELEASE DATE: Feb 28, 2017

DEVELOPER: Quantum Realm Games, ArcanForge  
PUBLISHER: Quantum Realm Games

Popular user-defined tags for this product:

[Strategy](#) [Indie](#) [Tabletop](#) [Early Access](#) [Chess](#) +



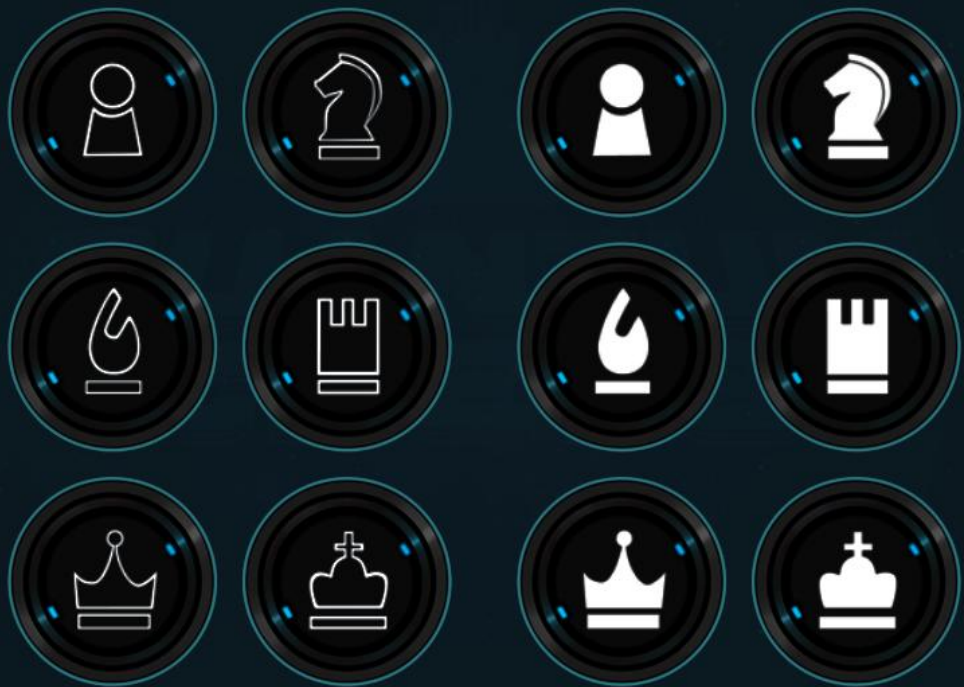
[https://store.steampowered.com/app/453870/Quantum\\_Chess/](https://store.steampowered.com/app/453870/Quantum_Chess/)

Sign in to add this item to your wishlist, follow it, or mark it as ignored

Report Bug

# SETUP

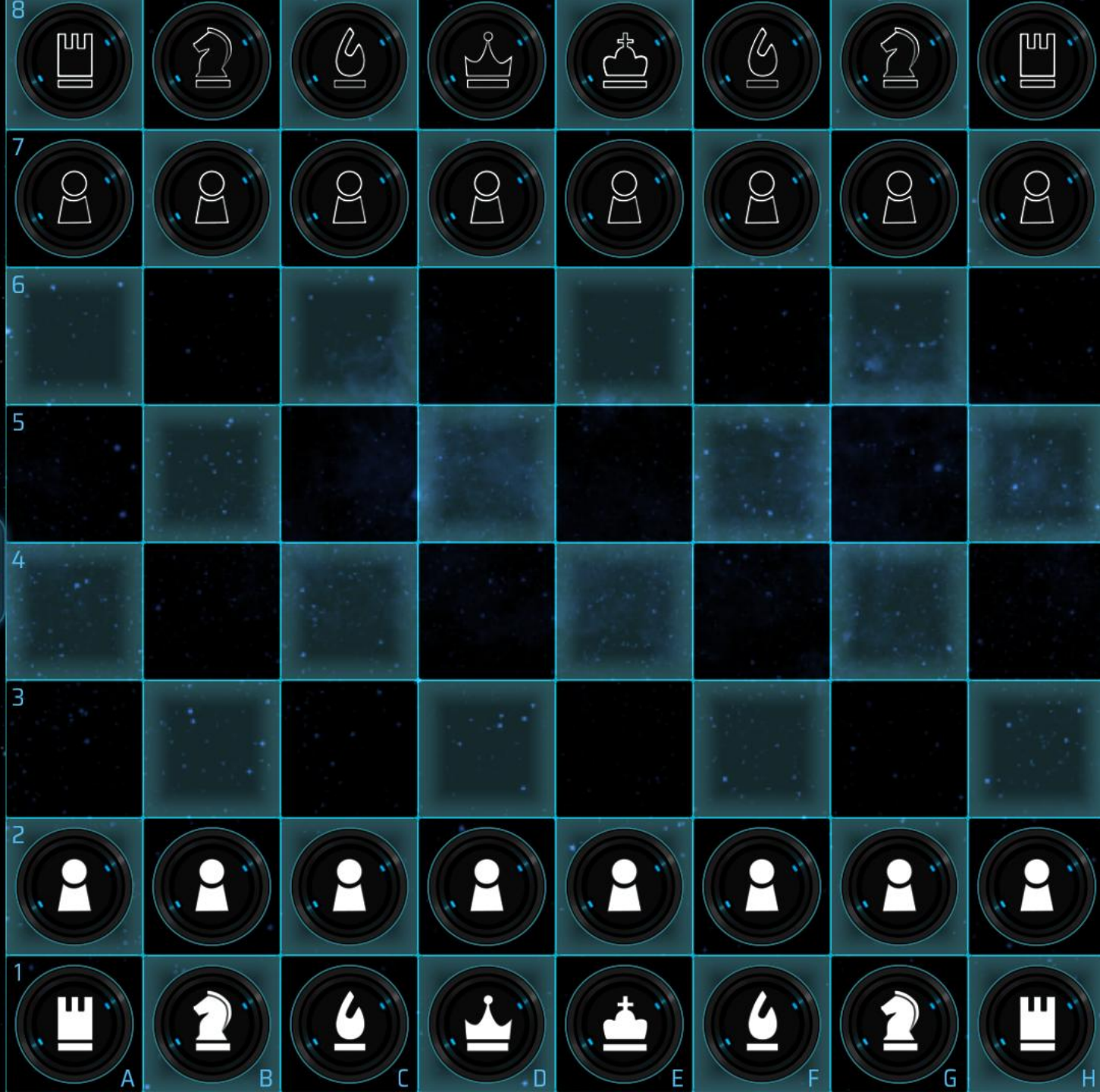
Drag pieces onto the board to set up a starting position.



CLEAR

NEW

PLAY







# 2025 INTERNATIONAL YEAR OF Quantum Science and Technology



100 years of quantum is just the beginning...



<https://quantum2025.org/en/>

On June 7, 2024, the United Nations proclaimed 2025 as the International Year of Quantum Science and Technology (IYQ). According to the proclamation, this year-long, worldwide initiative will "be observed through activities at all levels aimed at increasing public awareness of the importance of quantum science and applications."

The year 2025 was chosen for this International Year as it recognizes 100 years since the initial development of quantum mechanics. [Join us](#) in engaging with quantum science and technology education and celebration throughout 2025!



PULSE So. Cal.

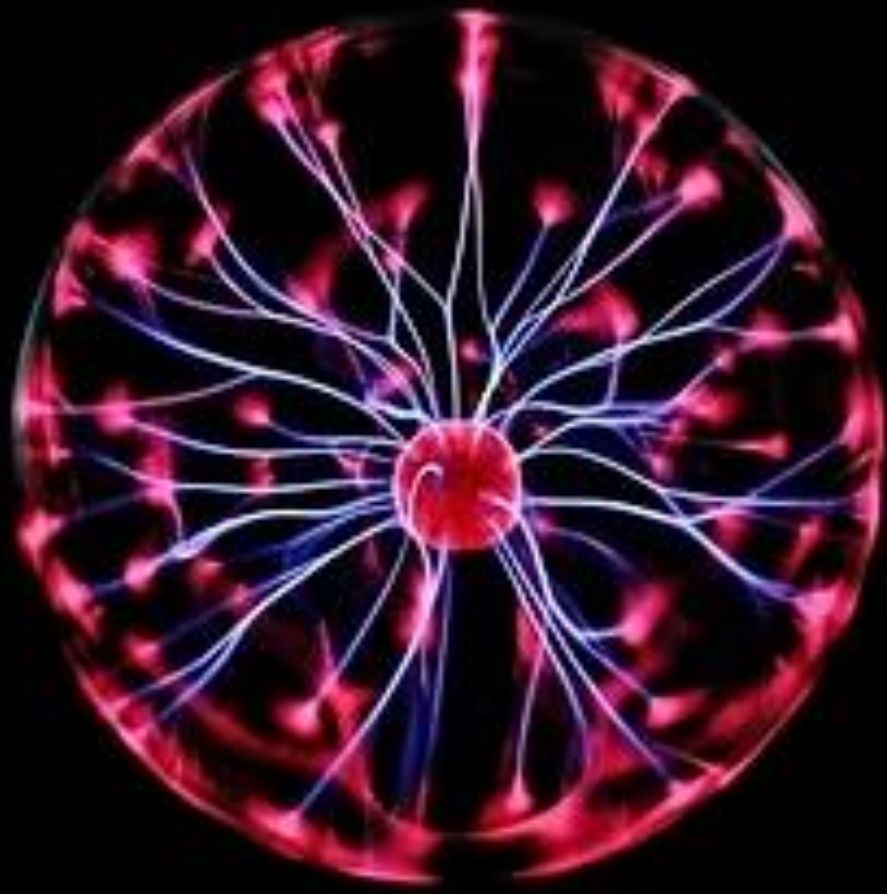
# PULSE

Empowering the next generation of physicists to exhibit:  
**P**hysics **U**nderstanding, **L**earning, and **S**tudent **E**xploration

The QOISC is helping to establish PULSE chapters in Southern California High Schools



PULSE Global



PULSE (Physics Understanding, Learning, and Student Exploration) is a program for High School students through high school physics clubs, where they learn the basics of physics and its applications, and provide a hands-on experience in applied physics.

This program will provide high school students with the necessary skills and knowledge of the fundamentals for any desired field of physics, along with opportunities to network and expand their knowledge, and access to valuable experiences.

**Start a PULSE Club at  
your School NOW!!**