

APOMA

American Precision Optics Manufacturers Association



Welcome to the DCS General Meeting

April 6, 2022

8:30am-9:30am St. George 108 room, Atrium level

Meeting Agenda

- Welcome and Opening Comments
- By-Law changes
- Membership update
- Financial Report
- OEOSC / ISO-10110 Update
- International Business - Dr. Andrew Brown
- AmeriCOM
- Apprenticeships
- Technical Workshop in Colorado
- APOMA Benefit Summary

APOMA Board Members 2022

Mike Mandina
President
Optimax Systems

Lee Steneken
President-Elect
Esco Optics

Kirk Warden
Past President
LaCroix Precision
Optics

Justin Mahanna
Treasurer
Universal Photonics

Dave Mohring
Secretary
OptiPro

Navid Entezarian
At-Large Member
Thorlabs

Zach Hobbs
At-Large Member
Sydor

Shai Shafrir
At-Large Member
Corning,
Advanced Optics

Dr. Alexis Vogt
Academic Member
MCC

Board Member E-mails

Contact information

- Mike Mandina: mmandina@optimaxsi.com
- Lee Steneken: lee@escooptics.com
- Kirk Warden: kirk@lacroixoptics.com
- Navid Entezarian: NEntezarian@thorlabs.com
- Justin J. Mahanna: justinm@universalphotonics.com
- Shai Shafrir: ShafrirS@Corning.com
- Alexis Vogt: avogt4@monroecc.edu
- David Mohring: dmohring@optipro.com
- Zach Hobbs: zach@Sydor.com
- Michele Stolberg: michlisa@frontiernet.net

Board Rotation (will have 1 year extensions to stagger rotation)

- One year term extensions may be needed for continuity since many terms are scheduled to turn over in 2024.

	Positon	2020	2021	2022	2023	2024	2025
1	President	Mandina	Mandina	Mandina	Steneken	Steneken	?
2	Past-President	Warden	Warden	Warden	Mandina	Mandina	?
3	President-elect	Steneken	Steneken	Steneken	?	?	?
4	Secretary	Sydor	Sydor	Mohring	Mohring	?	?
5	Treasurer	Czajkowsk	Czajkowsk	Mahanna	Mahanna	?	?
6	At Large	Mohring	Mohring	Hobbs	Hobbs	?	?
7	At Large	Mahanna	Mahanna	Entezarian	Entezarian	?	?
8	At Large	Ghio	Ghio	Shafrir	Shafrir	?	?
9	Academic	Vogt	Vogt	Vogt	Vogt	?	?

Increase participation in APOMA Board

- Increase Board Member turnover
 - Term limits
 - Greater visibility and participation in the nomination and election process
 - Changes to membership classification
 - Participation of members in support of board members and committees
 - Possible increase in paid staff

By-Law changes

Classification changes

Classification Definitions

- **Corporate** Members are:
 - Companies manufacturing optical components or devices in the US, Canada and Mexico (Latin America), must join as Corporate Members. Dues are based on the number of employees. (\$300 – \$1,300) **(2022 rates: \$400 - \$1,500)**
- **Associate** Members are:
 - Companies that supply to or purchase from optics manufacturers. (\$350) **(2022 rates: \$400 - \$1,500)** **Note:** Michele will be contacting companies to confirm size.
- **Affiliate** Members are:
 - Non-North American Companies that manufacture, supply or purchase optical products. Membership is \$1200. **(Eliminated Category)**
- **Academic** Members are:
 - Accredited organizations that engage in research, education or activities benefiting the optical industry. Free membership is limited to those involved in domestic optics.

APOMA Board Classifications

Past

Mem Classifications	Vote?	Hold Office?
Corporate	y	y
Associate	n (assoc y)	only 1
Affiliate	n	n
Academic	n	only 1
Retired	n	n
Honorary	n	n

New

MemClass	Vote?	Hold Office
Corporate	y	y
Associate*	y	up to 3
Eliminate Affiliate Classification		
No Change		
No Change		
No Change		

*change Fee schedule so Corporate and Associate are the same

Total of 9 or 10 board members

APOMA Board Classifications

Board Member Classifications	New		New	
	Classifications		Term (Years)	
President (2+2)	Corp		2	2
President Elect (2)	Corp		2	2
Treasurer	Corp		2	2*
Secretary	Corp		2	2
Past Pres (Director) (2+2+2)	Corp		2	2
Corp	Corp	Corp or Assoc	2	2
Corp	Corp	Corp or Assoc	2	2
Academic	Acad		2	2
Associate	Assoc		2	2

* Create "Past Treasurer" classification that will run for 2 Years.
Will maintain authority and oversight during this 2 year timeframe.

Considerations for Treasurer Position

- Must be approved by Board
- Prior Board service preferred
- Associate members are now eligible

New Corporate and Associate Dues

- Rates have not increased in 8 years.
- The new rate schedule for 2022:

Employees	Old	New
1 - 15	\$ 300	\$ 400
16 - 60	\$ 450	\$ 550
61 - 125	\$ 700	\$ 900
>125	\$ 1,300	\$ 1,500

Membership Distribution

- Current memberships to date (113 members):
 - Academic: 29 members
 - Associate: 23 members
 - Corporate <15: 22 members
 - Corporate 16-60: 21 members
 - Corporate 61-125: 9 members
 - Corporate >125 employees: 9 members

New Members in 2022

- Fisba LLC
- Nu-Tek Precision Optical Corp.
- Precitech



Financial Summary Yr. 21 -22

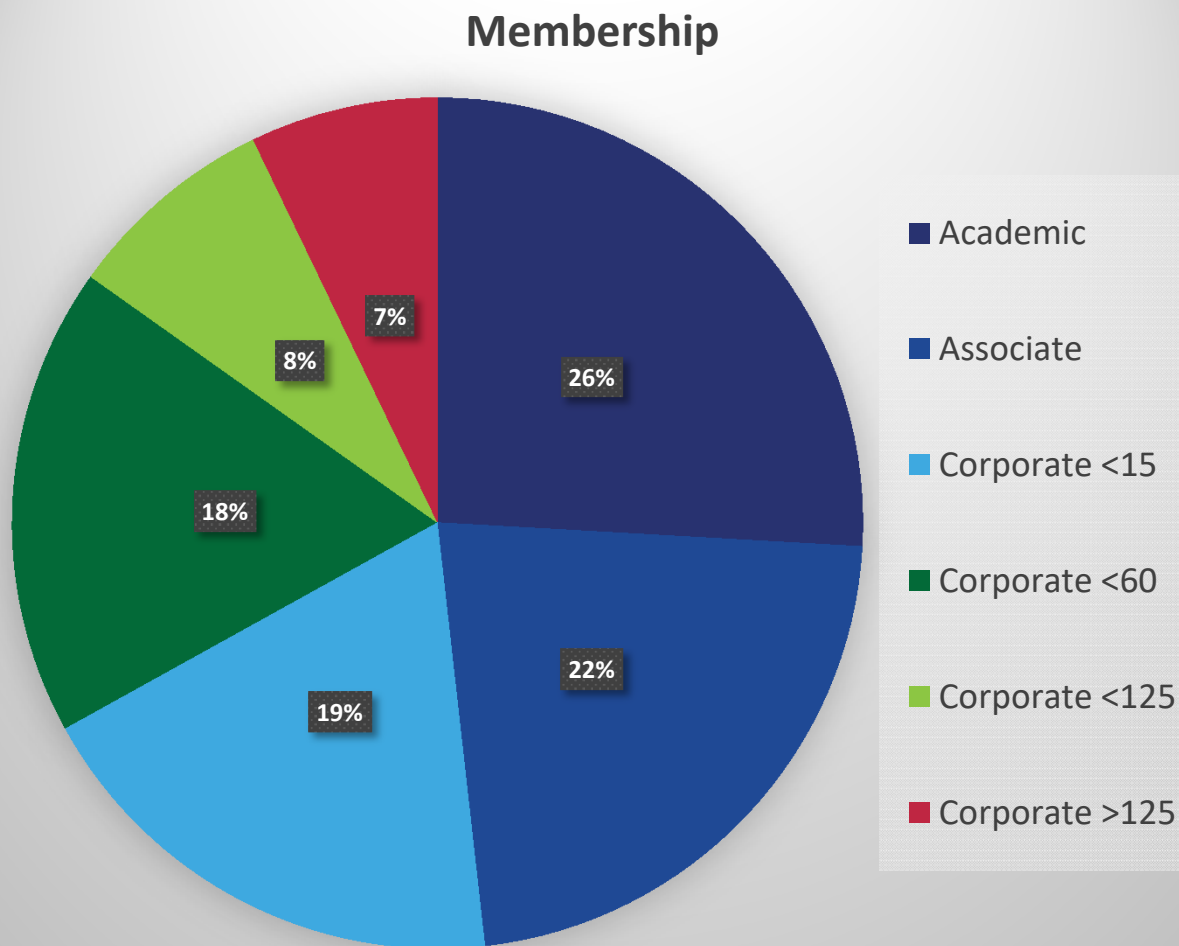
APOMA (2020–2021) Income/Expense

Income (Projected For Year 2022)
(Actuals For Year 2021)

Retained Earnings	\$224,745
Member Dues Yr. 2021	\$37,700
Projected Year End Balance	\$261,745
Projected Expenses	\$-32,450
Projected Total Retained	\$229,295
<u>Actuals Yr. End 2021</u>	
PayPal Account	\$25,581
M&T Bank	\$220,402
Year End Total Balance	\$245,983

Membership Distribution

APOMA
Membership
Statistics Yr.
'21



2021 Actual vs Budget

(Actual expenses in in red)

Postage, Supplies	\$150
	\$106
Dues & Licensing	\$5,500
	\$2,770
Tax & Accounting Fees	\$800
	\$635
Advertising	\$416
Web Site Maintenance	\$500
	\$388
Administrative Assistance	\$8,000
	\$3,378
Travel	\$7,500
	\$0,00
Conventions (OptiFab)	\$8,000
	\$549
Contributions	\$5,000
	\$6,500
Workshop	\$0
	\$0
Budgeted Expenses	\$35,450
Actual Spend	\$14,742

2022 Budget

Postage, Supplies	\$150
Dues & Licensing	\$6,500
Tax & Accounting Fees	\$800
Web Site Maintenance	\$2,000
Administrative Assistance	\$4,500
Travel	\$4,500
Conventions (OptiFab)	\$0,000
Contributions	\$5,000
Workshop	\$8,000
Budgeted Expenses	\$31,450

APOMA Updates

- OEOSC / ISO-10110 Update
- Apprenticeship – Dr. Alexis Vogt
- AmeriCOM – Jeff Ruckman
- International Business - Dr. Andrew Brown
- Marketing/Tech Workshop – Lee Steneken

OEOSC- Update

- **OEOSC – ASC OP (National Standards)**

- **Adopting ISO 10110**

- 1st Group – **Adopted 12/2021** - To be published Q2 2022
 - 10110-1 - General
 - 10110-5 – Surface Form Tolerances
 - 10110-7 – Surface Imperfection Tolerances
 - 10110-8 – Surface Texture
 - 10110-18 – Stress Birefringence, Bubbles & Inclusions, Homogeneity and Striae
 - 2nd Group, To be balloted in 2022
 - 10110-9 – Surface Treatment and Coating
 - 10110-11 – Non-tolerance Data
 - 10110-12 – Aspheric Surfaces
 - 10110-14 – Wavefront Deformation Tolerances
 - 10110-19 – Freeforms – General Description of Surfaces

OEOSC- Update

- **OEOSC – ASC OP (National Standards) (Cont)**
 - **Adopting ISO 9211 – Optical Coatings**
 - **Ballot expected late 2022**
 - 9211-1 – Vocabulary
 - 9211-2 – Optical Properties
 - 9211-3 – Environmental Durability
 - 9211-4 – Specific Test Methods: Abrasion Adhesion and Resistance to Wear
 - 9211-5 – Minimum Requirements for Antireflection Coatings
 - 9211-6 – Minimum Requirements for Reflection Coatings
 - 9211-8 – Minimum Requirements for Coatings Used for Laser Optics
- **New Website launching in Summer 2022**
 - www.oeosc.org

OEOSC- Update

- **Seeking new members to participate**
 - **ASC OP – National**
 - TF4 - Imperfections
 - TF6 – Infrared materials
 - TF7 – Laser applications
 - **TAG – International**
 - SC1 Fundamental Standards
 - SC3 Materials and Coatings
 - SC4 Telescopes
 - SC5 Microscopes and Endoscopes
 - SC6 Geodetic Instruments
 - SC9 Lasers and Electro-Optics

OEOSC- Update

- **Joining OEOSC**
 - Discount on standards – Contact Patrick Augino for more information – paugino@optiamxsi.com
 - Direct input on current and future standards - Open time commitment
 - Interactions with experts in your field
 - Website: www.oeosc.org

A horizontal banner with a dark blue gradient background. On the right side, there are several 3D rendered optical components: a large ring-shaped lens, a smaller ring-shaped lens, and a triangular prism. The text "APOMA Updates" is centered in white.

APOMA Updates

Precision Optics Manufacturing Apprenticeship

Structured earn & learn program: on the job training + related technical instruction



Seeking additional optics companies!

Optics Manufacturing Technician Apprenticeship

- **Benefits to Employers:**

- A more stable workforce
- Improved attendance & job satisfaction
- Reduced turnover
- Increased productivity
- Improved quality

- **Benefits to Apprentices:**

- Paid employment
- Long-term career opportunities
- Gain workplace relevant skills
- Receive industry credential
- Earn academic credit

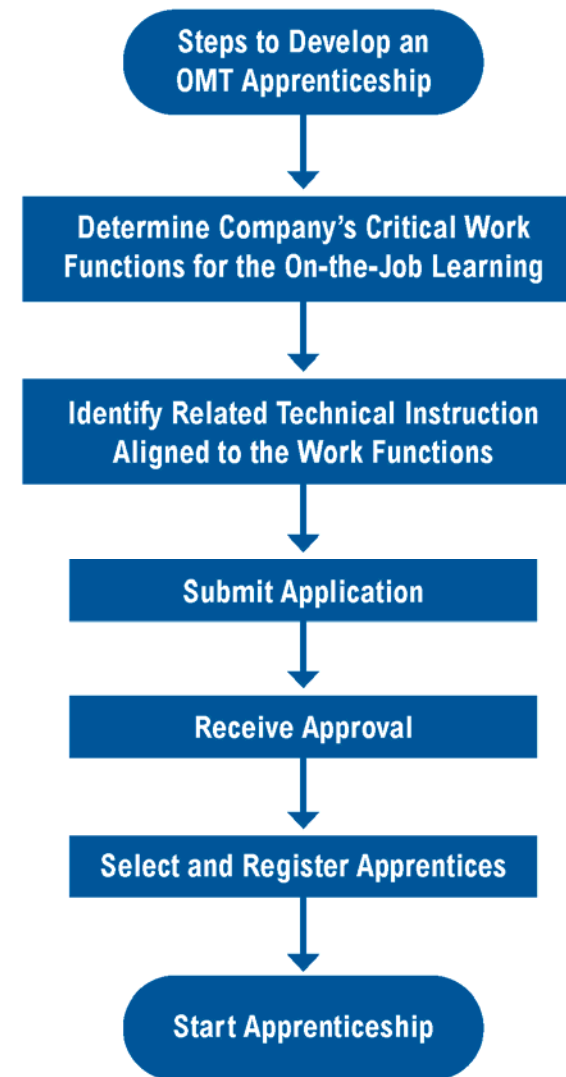
Check out our APOMA MCC Apprenticeship video!

<https://apoma.videoshowcase.net/mcc-apprenticeship-video-2021>

Optics Manufacturing Technician Apprenticeship

Ross Micali

National Work-based Learning Coordinator
Monroe Community College
Optical Systems Technology
rmicali@monroecc.edu
(585) 202-1118



AmeriCOM



American Center for Optics Manufacturing

The Backbone of America's
Precision Optics Industry

Booth# 519

americom.org

Jeff Ruckman
CEO & President
jruckman@americom.org

Tom Battley
Vice President,
Government & Partnerships
tbattley@americom.org

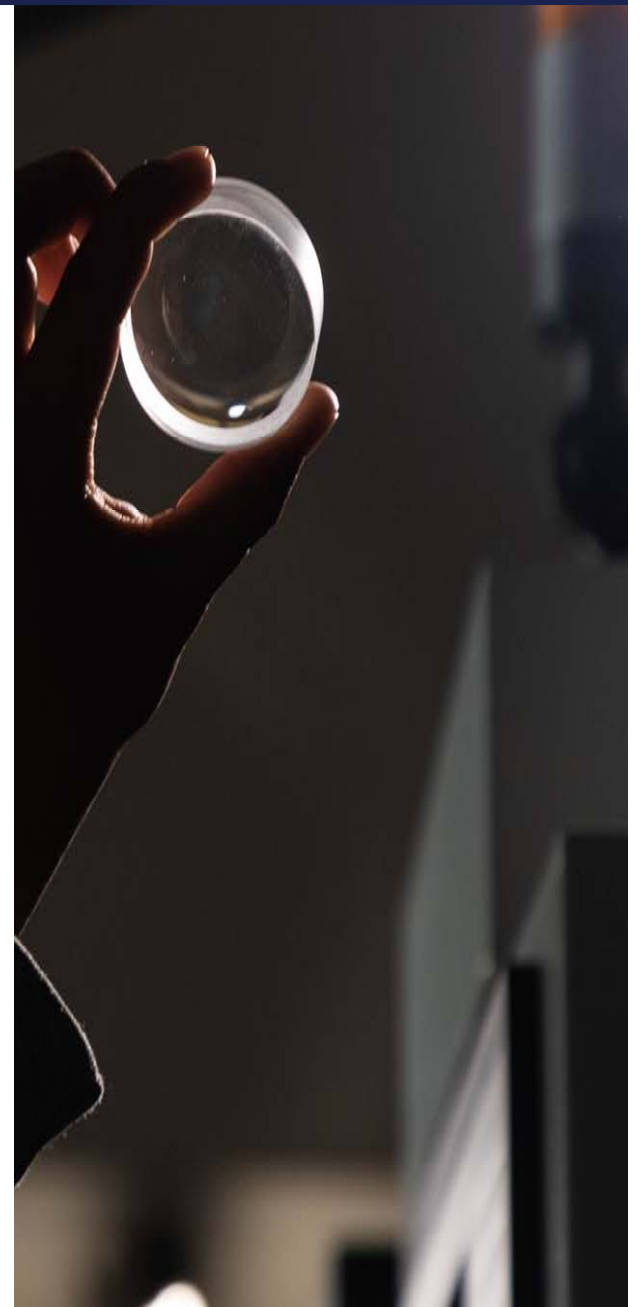
Alexis Vogt, PhD
Workforce & Higher Education
Executive Director
avogt@americom.org

APOMA
American Precision Optics Manufacturers Association



American Center for Optics Manufacturing

The Backbone of America's
Precision Optics Industry





Recent history – where did AmeriCOM come from?

What is AmeriCOM's mission?

Why is it relevant to you?

Current status of the effort

Opportunities to participate/shape the agenda



High precision optics are pervasive in the military – from night vision goggles to hypersonic missiles. Our national security is directly tied to the capacity of the optics industrial manufacturing base.

AmeriCOM is America's Center for Optics Manufacturing — a national effort to significantly build and sustain that base.

Recent History of the Optics Fabrication Industry

1980s

Optics Industry is labor intensive
Industry offshoring
SME in optics not investing



DoD primes have a problem — no one DoD program can absorb the risk, time or dollars for manufacturing R&D



APOMA eventually leads effort to develop industry modernization effort

1990s



COM transforms the optical fabrication industry —
New businesses formed
U.S. Industry saved from disappearing
New highly skilled job classifications created
A generation of optics manufacturing leaders trained

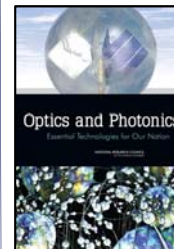
2000s



SBIR begins to invest \$60M+ and continues through 2019

2010s

National Research Council releases report in 2013



2018 Industrial Base Analysis and Sustainment Report identifies optics as a key technology



Monroe Community College
STATE UNIVERSITY OF NEW YORK

Alexis Vogt takes the helm in 2015 and MCC Optics Technology program takes off



Instrumental in educating Congress on the importance of optics

1980s



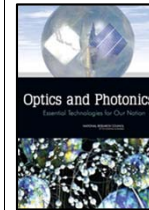
1990s



2000s



2013



Monroe
Community
College
STATE UNIVERSITY
OF NEW YORK



Optics Industry has not automated

- Artisan techniques and labor costs dominate
- Iterative trial and error processes, non-deterministic

Losing the market

- Cheaper imports capture the commercial market
- DoD and Primes become 60% of the US captured production
- Off-shore encroaches on the DoD markets
- Industry begins to downsize, opticians not being replaced

Industry not investing in new manufacturing technologies

- Optical designs limited by mfg capabilities - spherical, plano, IR aspheric

1980s



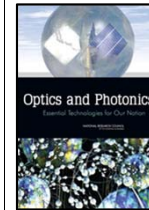
1990s



2000s



2013



Monroe
Community
College
STATE UNIVERSITY
OF NEW YORK



DoD Primes Have a Problem

- Oversea dependance
- Need processes for new materials
- Need optics for nex-gen systems (stealth – A12, end game missile seekers)
- Need higher performing, less costly systems

No one DoD program can absorb the risk, time or dollars needed to invest in the optics mfg R&D for new capabilities

1980s



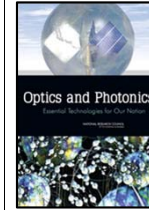
1990s



2000s



2013



Monroe
Community
College
STATE UNIVERSITY
OF NEW YORK



APOMA Reacts

Replaces labor intensive processes with automation, capital, and smart processes based on engineering-driven research

- Proposes an industry modernization effort to the Army
- Creates collaboration between Industry + University + Army Materiel Command / Picatinny Arsenal

1980s



1990s

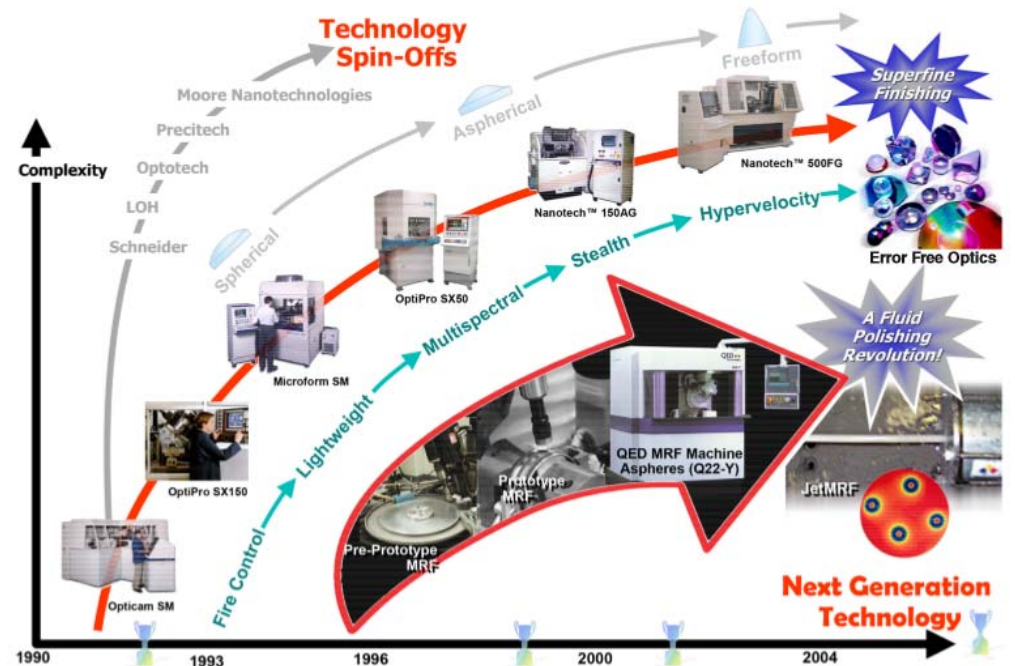


Center for Optics Manufacturing Advances the Optics Industry

Invents new equipment and methods of manufacture

- Automated spherical and aspherical generating
- Freeform grinding capability
- Deterministic micro-grinding – 5x faster
- Magnetorheological finishing
- Process science and materials understanding

APOMA
American Precision Optics Manufacturers Association



In 1990 you could not buy a CNC-based, optics manufacturing machine.
Today, you can't survive as an optics manufacturer without one...

1980s

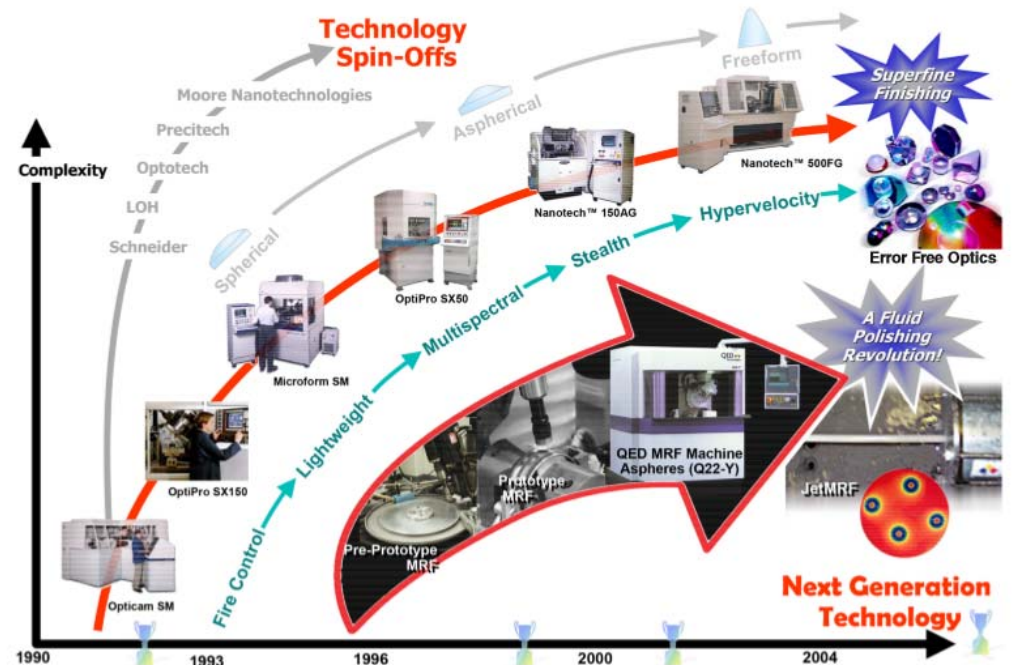


1990s



COM Impact

- New businesses form directly out of COM
 - OptiPro, Optimax, QED
- Transformed entire optical fabrication industry
- Saved the US industry from disappearing
- Created new, highly skilled job classifications
- Trained a generation of optics manufacturing leaders
- ~\$2M per year / \$32M total - MANTECH Award



In 1990 you could not buy a CNC-based, optics manufacturing machine. Today, you can't survive as an optics manufacturer without one...

1980s



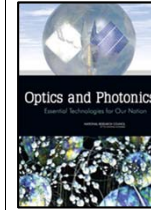
1990s



2000s



2013



Monroe
Community
College
STATE UNIVERSITY
OF NEW YORK



Dr. Dan Harris - NAVAIR SBIR Research Program

- Technical Focus: fabrication and metrology of aerodynamic domes, conformal and freeform windows, optical ceramics with needed opto-mechanical properties,
- Total investment: more than \$60+M in SBIR funds ~17 years
- Ended with final review in Rochester, November 13, 2019

1980s



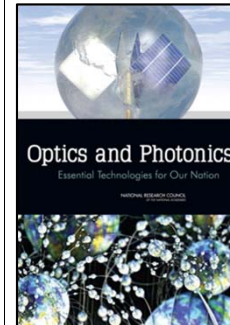
1990s



2000s



2013



National Research Council Report

Optics and Photonics: Essential Technologies for Our Nation

“In order for the United States to maintain leadership in advanced defense systems, it is critical for the nation to be at the forefront of both research and manufacturing.”

2018 Industrial Base Analysis and Sustainment Report

Identifies Optics as a key technology for the DoD

1980s



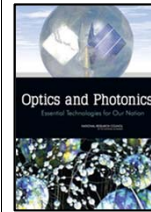
1990s



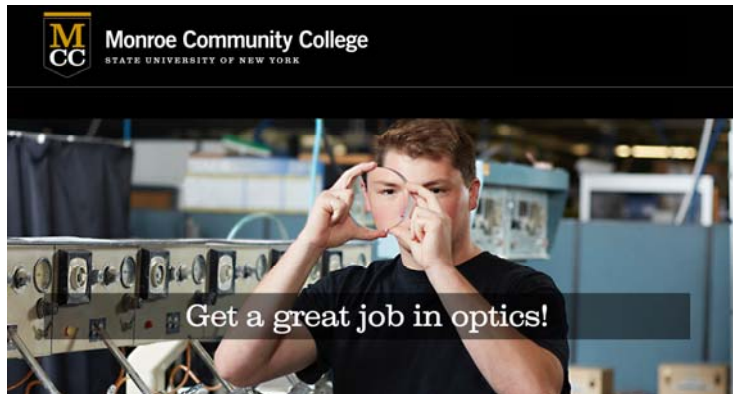
2000s



2013



Monroe
Community
College
STATE UNIVERSITY
OF NEW YORK



MCC program takes off

- Industry raises \$750K for MCC Optics Program
- Alexis Vogt, PhD takes the helm in 2015
- Establishes the nation's first Optics Technician degree-program
- Awarded grants from NSF and ONR

1980s



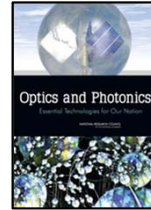
1990s



2000s



2013



Monroe Community College
STATE UNIVERSITY OF NEW YORK



Instrumental in educating Congress on the importance of optics.

New York State Photonics spins-off AmeriCOM as a 501c3 non-profit organization.



- Presidential executive order on *Assessing and Strengthening the Manufacturing Defense Industrial Base and Supply Chain Resiliency of the United States*:

“A healthy manufacturing and defense industrial base and resilient supply chains are essential to the economic strength and national security of the United States.”

- Optics is key to every system and every program in the Defense Industrial Base
- DoD IBAS identifies optics as a key technology



Our mission:

- Design and execute workforce training programs to support the increasing complexity and growing manufacturing requirements of the nation's optics industry.
- Develop advanced optic manufacturing technologies, testing equipment, and the specialized materials required to support scalable manufacturing.
- Deliver trained new employees to industry and successfully transition mission-critical precision optics technologies from research into sustainable manufacturing operations —*the most important measure of success.*



Establish and maintain a national network of regional optics ecosystems

Based on the mature MCC-model, we will raise awareness of optics as a career path and recruit students into community college and apprenticeship programs.



Grow the number of high schools and two-year colleges offering precision optics programs

Supported by regional advisory boards, we will build labs, set up a collaborative curricular clearinghouse, and recruit, train, and retain teachers.



Identify and develop new manufacturing technologies

By assessing the current industrial base for gaps in the defense systems supply chain and future needs, we will create a roadmap of needs and develop and deploy new technologies required to support scalable DoD manufacturing.



- Monroe Community College (MCC) has the development mission for optics technician training (curricula, methods) based on their unique, long term, and highly successful model
- AmeriCOM will have responsibility for implementing nationwide selection of colleges and transition execution
 - Use the MCC template and IBAS funding to drive the direct interactions with the extension sites
 - Serve as a catalyst with the MCC DEEP OPS (\$4.4 M) Program to increase agility, speed, and flexibility of extension to other sites
 - Adapt Rochester technical training model to ecospheres in key areas of the country
 - Train a new generation of optics manufacturing leaders



- Build upon the shoulders of the COM and the NAVAIR SBIR efforts
- Create DoD and industry advisory and review boards to develop DoD priorities and oversee execution of the research agenda
- Oversee National optics fabrication technology



Image Source



Image Source



Image Source



Stinger Missile Demonstration
PCOT program



Image Source



Image Source



Image Source

AmeriCOM Technologies

Systems Challenges

Directed energy systems

Extreme optical performance requirements

Large, high-performance components at volume

Hypersonic optics

Evolving complex configurations

Complex windows, domes and corrector optics

Materials issues

and more.....

Manufacturing and Design Challenges

Extreme performance systems

Greater accuracy

Difficult to work materials

Difficult geometries

Thin film coatings

New optical materials

Design tools

and more.....



■ Building team

- President & CEO; Vice President, Government & Partnerships; and Workforce & Higher Education Executive Director, DPOC Executive Director
- National Marketing Manager to develop a workforce training outreach campaign, Administrative Manager, Engineering Manager
- Recruiting other key leadership staff

■ Building key relationships

- Establishing top-level Optics Advisory Board for DPOC to include representatives from US Air Force, US Army, US Navy
- Will add industrial members to the advisory board soon
- Key subcontracts in place or in work

■ Building AmeriCOM infrastructure

- AmeriCOM business systems – banking, accounting, payroll, legal, contracts, office space, IT
- Driving toward a decision on the need for a R&D space for the precision optics community



- Workforce training
 - Regional partners facilities –
 - First equipment for SCCC delivered early 2022
 - Working with FRCC to finalize needs
 - Evaluating next regional sites for investment – Valencia, Pima, others
- Defense Precision Optics Consortium
 - Assessing the DoD precision optics industrial base
 - Mapping supply chain market segments
 - Benchmarking trends, identifying gaps in future needs
 - Developing a roadmap to fix gaps
 - RFIs/RFQs on research/investment topics to be issued soon



- Many of you helped create this opportunity for our industry
- This effort will continue to demand support from the stakeholders
- There will be ongoing opportunities for you and your organization to support and shape our consortium's activities

International Business

- Dr Andrew Brown
 - Senior Director Global Business Development at SPIE

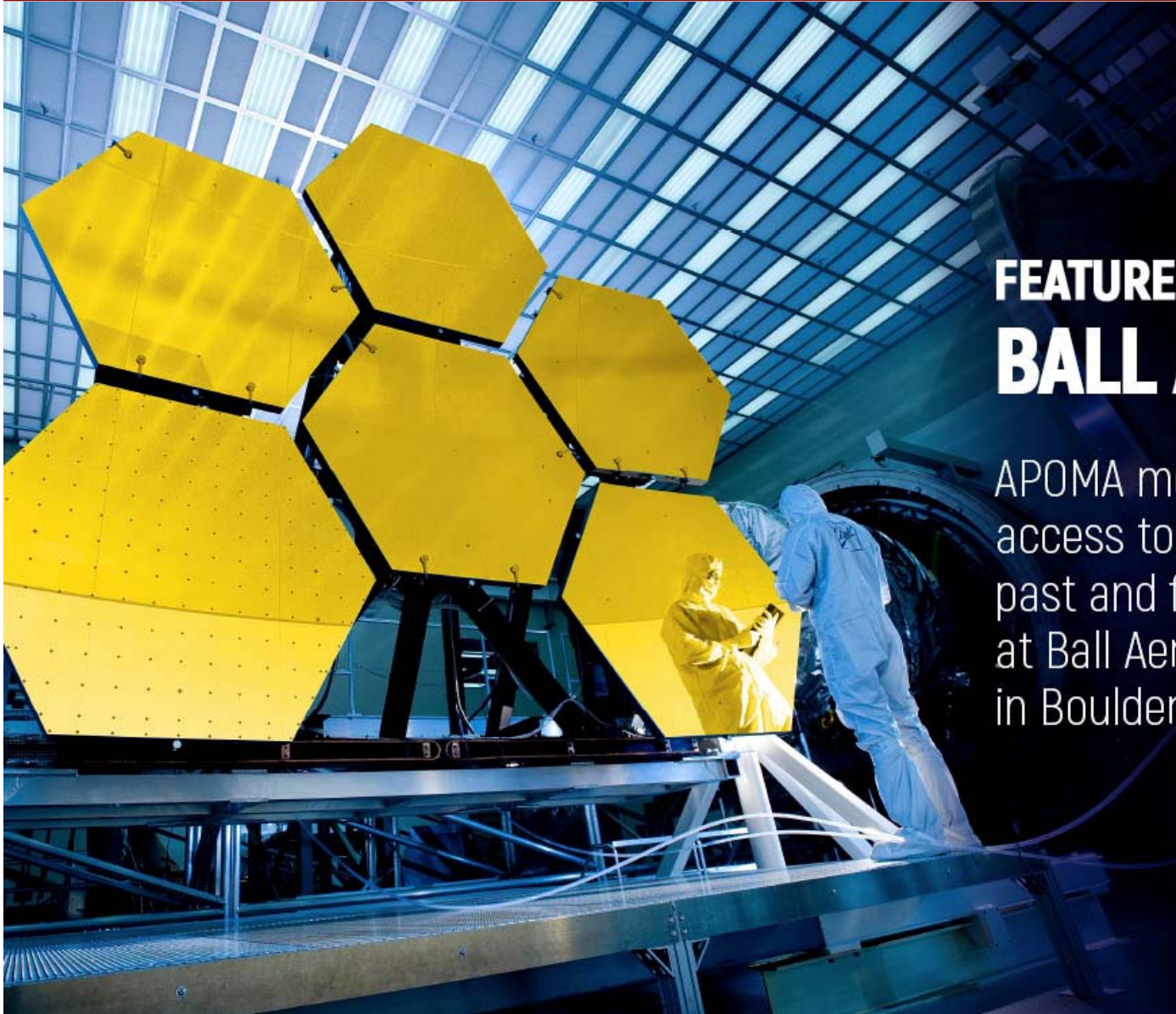


Colorado Tech Workshop 2022 – Lee Steneken

Colorado Tech Workshop



Feature Tour



FEATURE TOUR **BALL AEROSPACE**

APOMA members will have access to groundbreaking past and future projects at Ball Aerospace's facility in Boulder.

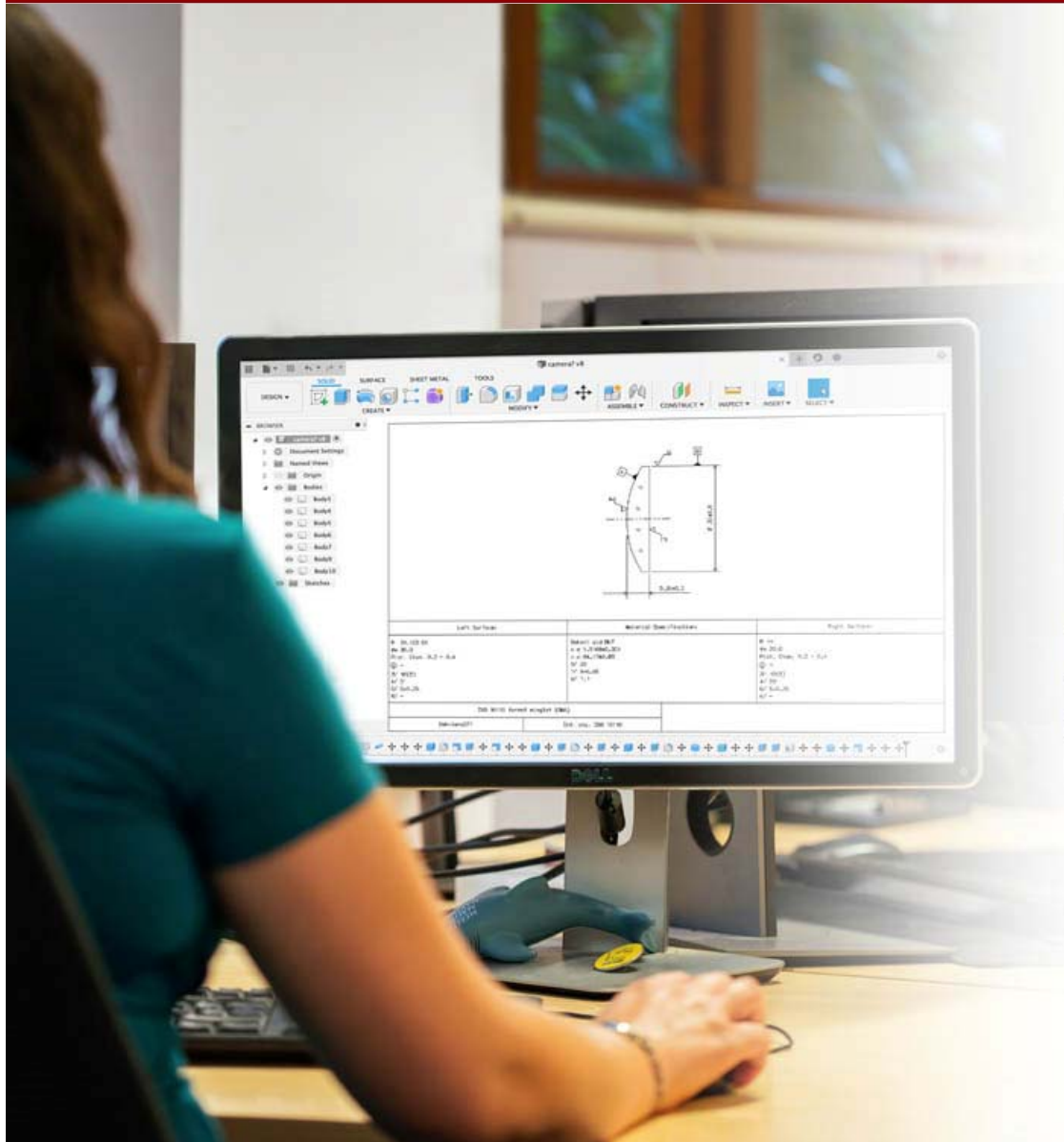
Presentation



How Mechanical and Chemical Reactions Impact Ultra-Low Roughness Polishing

Jayson Nelson
MANUFACTURING TECHNOLOGY MANAGER
EDMUND OPTICS

Presentation



New Developments in ISO Standards

Dave Aikens
CEO | SAVVY OPTICS

Presentation

A close-up photograph of a microchip assembly. Several circular silicon wafers with a fine grid of gold-colored bumps are visible, mounted on a larger substrate. To the left, a row of vertical metal pins or connectors is visible. The background is dark and out of focus.

Understanding Coolants and Trizact

UNIVERSAL PHOTONICS

Presentation



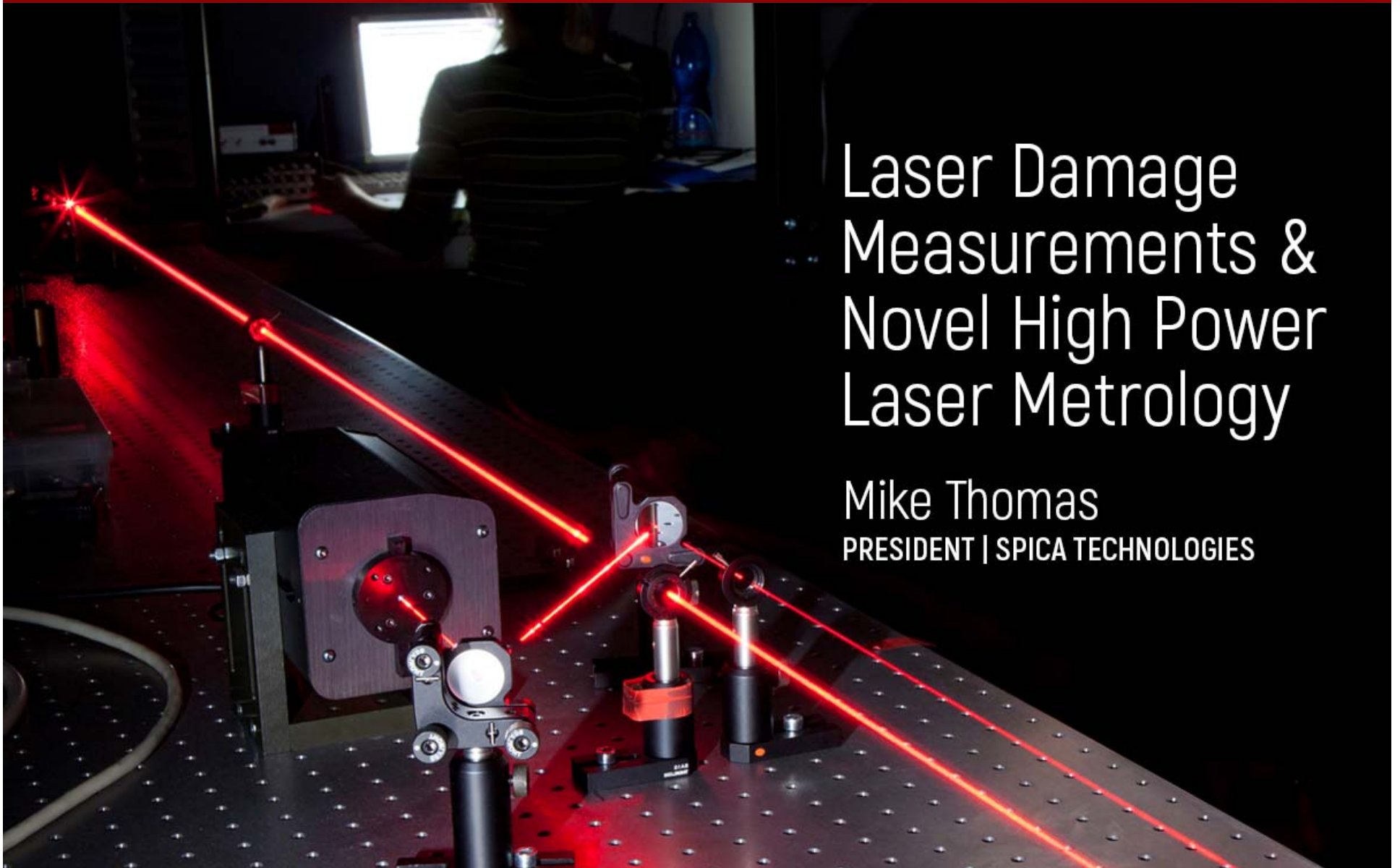
International trade
and government
contract considerations
in today's environment

Kerry Scarlott
FOUNDER | NORTHSTAR LAW

Presentation

Laser Damage Measurements & Novel High Power Laser Metrology

Mike Thomas
PRESIDENT | SPICA TECHNOLOGIES



Presentation



Rules-of-thumb for optical fabrication

Tayyab Suratwala

PROGRAM DIRECTOR, OPTICS,
MATERIALS SCIENCE & TECHNOLOGY

LAWRENCE LIVERMORE NATIONAL LABORATORY

Presentation

The Two Primary Missions of AmeriCOM

- The American Center for Optics Manufacturing
- How APOMA Members Can Participate

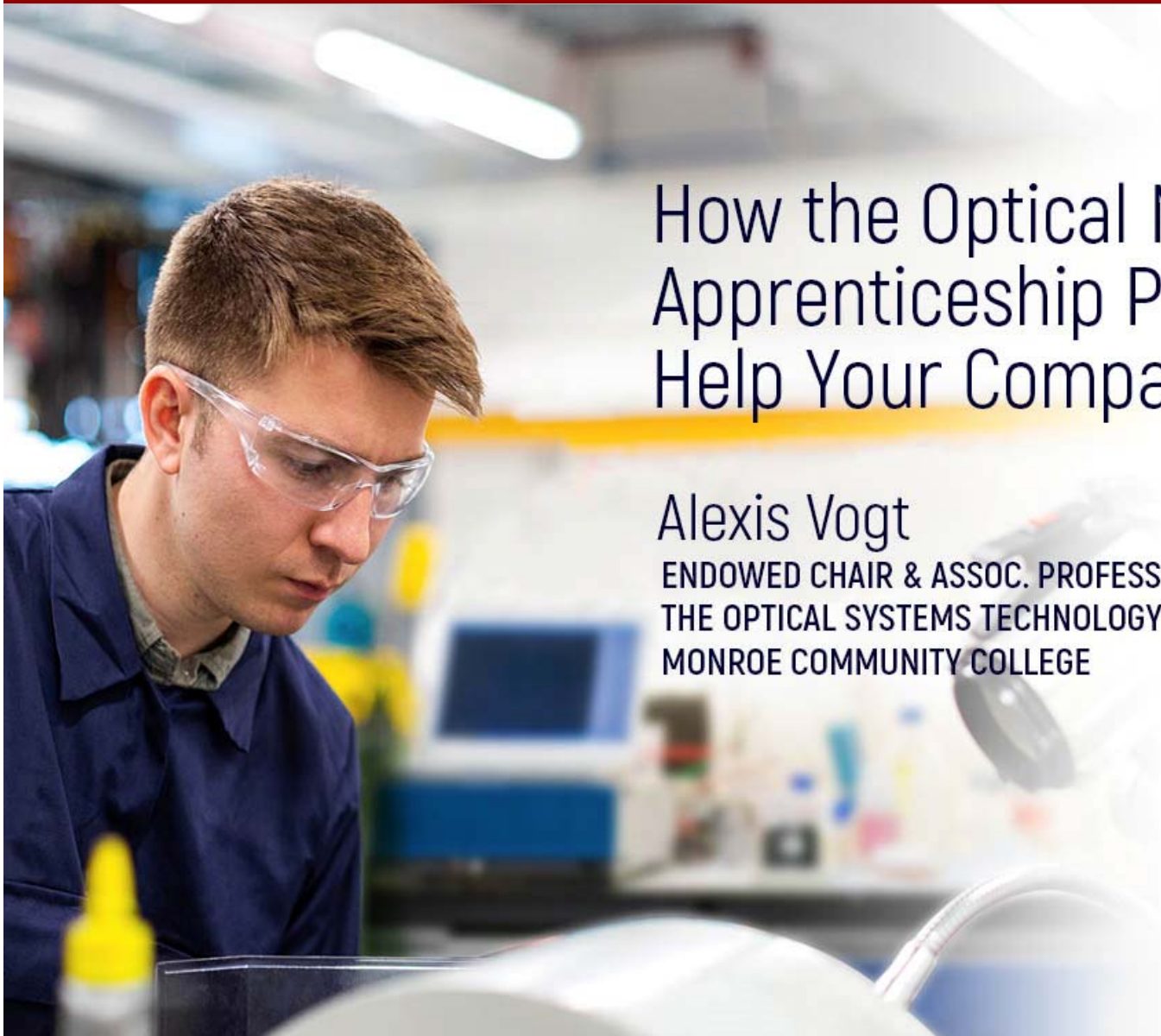
Jeff Ruckman
CEO | AMERICOM

Presentation

How the Optical Manufacturing Apprenticeship Program Can Help Your Company

Alexis Vogt

ENDOWED CHAIR & ASSOC. PROFESSOR OF
THE OPTICAL SYSTEMS TECHNOLOGY PROGRAM
MONROE COMMUNITY COLLEGE



Additional Presentations by



The Science of Surfacing™

APOMA
American Plastics Manufacturers Association



COST PER PERSON

\$350

Hotel Boulderado

2115 13th St. Boulder, CO 80302

APOMA discount rate \$179

Additional hotels 1.5 miles away

Hilton Garden Inn \$149

Hilton Embassy Suites \$169

Residence Inn Marriott \$189

Boulder Marriott \$179

Lodging details & current
agenda available online

REGISTER TODAY

APOMA.org

Thank you

MADE POSSIBLE BY THESE SPONSORS



SPIE.

SCHOTT

Heraeus



Additional base sponsorship available. Contact Lee@EscoOptics.com

APOMA Benefits

- **OPTIFAB**

- Every 2 years alternating with OptoTec in Frankfort, GE
- Founding organization for the show which is in its 20th year,
- Members receive discounts.
- Co-sponsor of the Optics Clambake in association with OPTIFAB.

APOMA Benefits

Workforce Education and Training

- Exclusive APOMA Technical Workshops offered in alternating years with exclusive speakers
- Key partner establishing the **National** Precision Optics Manufacturing (POM) Technician Apprenticeship including our partnership with Dr. Alexis Vogt at (MCC) in Rochester, NY
- Support of **AmeriCOM** – American Center for Optics Manufacturing – a national initiative based in Rochester to promote technician training and defense precision optics manufacturing capabilities
- APOMA produced video segment promoting Apprenticeships:
[APOMA / MCC - MCC Apprenticeship Video 2021 \(videoshowcase.net\)](#)

APOMA Benefits

Online presence for our industry

- APOMA website that directs business to your facilities and offers job postings
- APOMA e-Newsletter (bimonthly) and member notifications via Constant Contact
- Active APOMA LinkedIn group
- Access to APOMA technical papers & conference proceedings through the Members Only portion of the website

APOMA Benefits

Industry Promotion

- Member recognition at optics conferences and exhibitions (APOMA badge ribbons, member easels and flags for exhibiting members)
- Member notifications of events of interest to the industry (i.e. Formation and meetings of the Congressional Optics and Photonics Caucus <https://www.lightourfuture.org/home/get-involved/congressional-optics-photonics-caucus/>)
- Reciprocal sponsorships with regional optics clusters for special events (i.e. Arizona Photonics Days)

APOMA Benefits

Industry Promotion (continued)

- Support the Annual Optics Golf Tournament with proceeds benefiting UR Golisano Children's Hospital in Rochester, NY
- Optics industry Clam Bake at Optifab sponsored by Sydor Optics with proceedings matched by SPIE and benefitting MCC's optics program with scholarships
- Supporter of the 2022 United Nations Worldwide International Year of Glass (IYOG)

APOMA Benefits

Other

- APOMA member General Meetings at key conferences with relevant industry updates
- Establishment of scholarship funds in memory of founding members: Robert Novak, Harvey Pollicove, Richard Nasca
- Active APOMA Board of Directors with representatives from multiple member companies that met regularly via Zoom to discuss topics effecting the membership

Charitable activities

APOMA Western NY Golf Tournament coming up this summer!

- 3rd Thursday in July (7/21/22) at the Victor Hills Golf Club (22nd Annual), entry costs same as 2019.
- Proceeds to go to UR Golisano Children's Hospital .



Join our group!

APOMA LinkedIn:

**American Precision Optics Manufacturers
Association (APOMA)**

<https://www.linkedin.com/groups/2804066/>

DCS Update?

SPIE

Other Business?