

**FROM MARS TO MANHATTAN FIBER OPTIC SENSORS  
PROVIDE SOLUTIONS TO OUR EVERYDAY LIVES**



**Redondo Optics, Inc.**

**THE ALL AROUND FIBER  
SENSOR COMPANY**

## THE COMPANY

Redondo Optics Inc. (ROI) is a research and engineering company built on its expertise in materials science, optics and fiber optics, electronics and signal processing. Its mission is to lead in the field of nanotechnology, advanced optical materials, optical sensors and instrumentation, and introduce disruptive products with applications in energy, lighting and displays, life sciences and biotechnology, aerospace, telecommunications, and defense & security.

## BUSINESS STRATEGY

ROI's focus is fixed on profitability, strong customer and process orientation, radical cost downscaling, leaner management and logistics systems, and portfolio streamlining.

*These are the core ingredients of ROI's corporate strategy.*

“**INNOVATION THROUGH NANOMATERIALS TECHNOLOGY ADDRESSING MULTIPLE HIGH GROWTH MARKETS.**”

## ROI'S TECHNICAL SKILL SETS

- » **Optical Materials Design and Development**
  - » Advanced optical glasses, ceramics, and polymers
  - » Functionally doped glasses
- » **Fiber Optic Sensors**
  - » Sensor chemistries
  - » Specialty fiber sensor design
  - » Chemical, biological and physical
  - » Single point, multipoint, and distributed sensors
- » **Planar Lightwave Circuit Design and Fabrication**
  - » Advanced PLC design; passive, active, and hybrid devices
  - » Advanced optical design; diffractive and binary optics
  - » PLC production, testing, and assembly
- » **Optoelectronics Systems Engineering**
  - » High speed optoelectronics design and assembly
  - » Electronic circuit design
  - » Mechanical design and production
  - » Device packaging

**ROI'S INNOVATIVE TECHNICAL TEAM CONSISTS OF A GROUP OF HIGHLY SKILLED SPECIALISTS FROM ALL AROUND THE WORLD FOCUS ON DEVELOPING TOMORROW'S OPTICAL TECHNOLOGIES.**



# THE ROI ADVANTAGE

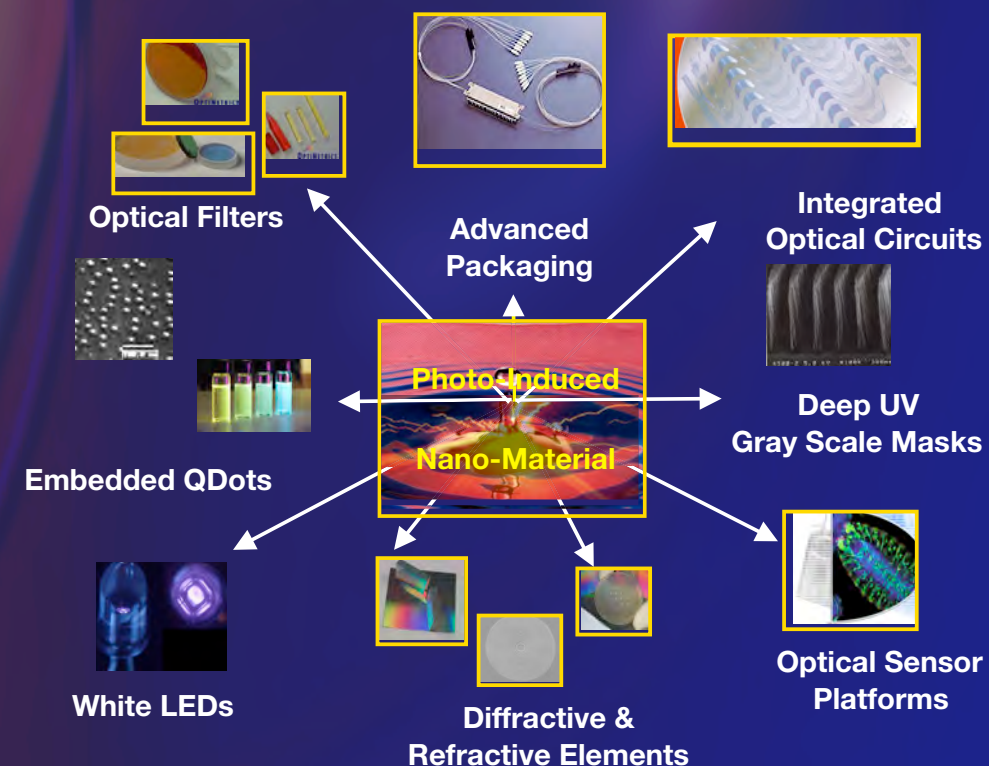
A chemical route for obtaining glassy and ceramic materials at relatively low temperatures starting from liquids.

- » Photosensitive Spin-on-Glass
- » Spherical Powders
- » Coatings
- » Waveguide Wafers
- » Monolithic Glass
- » Fibers



## KEYSTONE NANO-MATERIAL PLATFORM ADDRESSING HIGH GROWTH MARKETS

Our proprietary nanostructure materials technology has applications in diverse sectors of biotechnology, lighting and displays, telecommunications, high-speed electronics, and aerospace.



**DEVELOPING PRODUCTS WITH A FOCUS ON MANUFACTURING TO ENABLE FASTER THROUGHPUT AND SIGNIFICANT COST/YIELD ADVANTAGES.**

# OUR PRODUCTS

## » Fiber Optic Fluorescence Lifetime Sensors

- » Compact and portable fluorescence lifetime sensor interrogator
- » Dual sensing channels for temperature or pressure compensation
- » Fiber sensors for oxygen, pH, temperature, CO2, moisture

## » Miniature FBG Sensor Interrogators

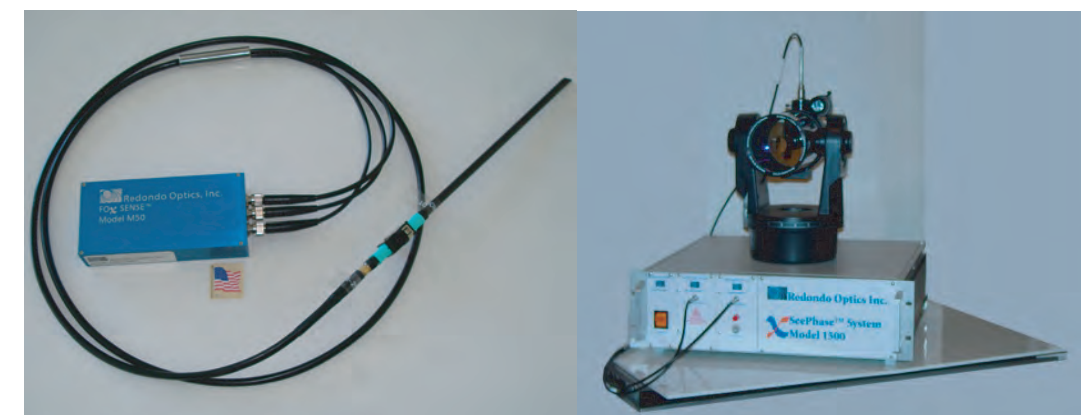
- » Compact and portable fiber Bragg grating (FBG) sensor interrogator
- » Real time multichannel monitoring of passive and active events
- » Fiber sensors for stress and strain, temperature, pressure, vibrations, and acoustics

## » Remote Fluorescence Lifetime Systems

- » Remote Laser Induced Fluorescence > 1-km
- » Single Point Scanning or 2D Lifetime Imaging
- » Chemical, Biological, and Nuclear Detection and Identification

## » Micro and Nanofluidic Biochips

- » Multidimensional Fluidic Biochips
- » Genome and Nucleic Acids Detection and Identification
- » Biological Materials and Agent Detection
- » Spectroscopic Sensor Platform



# MARKETS

Offering innovative nanotechnology solutions to a broad customer base we target fast growth markets in:

- » Energy
- » Lighting and Displays
- » Life Sciences and Biotechnology
- » Aerospace
- » Telecommunications
- » Semiconductors
- » Defense & Security

## MARKET OPPORTUNITIES FOR FIBER OPTIC SENSORS

- » The US fiber optic sensors market is expected to reach \$3.2 Billion in 2023, up from \$2 billion in 2016
- » The intrinsic sensor market is expected to grow at an annual rate of 35% from \$1.7 billion in 2016 to \$2.4 Billion in 2023
- » The extrinsic sensor market is projected to increase from \$650 Million in 2016 to \$2.1 Million in 2023, with a compound annual growth rate (CAGR) of 9%



WE TRANSFORM IDEAS INTO REALITY  
THROUGH INNOVATION AND TECHNOLOGY

# COMMERCIALIZATION STRATEGY

- » Strategic partners
- » Technology transfer
- » Venture partnerships
- » OEM products

# CUSTOMERS

ROI's diversified customer base includes top tier companies including:

- |            |                     |
|------------|---------------------|
| » Boeing   | » Applied Materials |
| » Raytheon | » General Motors    |
| » Kodak    | » Tyco              |
| » Sony     | » 3M                |
| » Intel    | » Siemens           |
| » Motorola | » Coherent          |
|            | » U.S. Navy         |



INNOVATIVE NANO-MATERIALS PLATFORM AND OPTICAL  
ENGINEERING SOLUTIONS USED IN THE DESIGN AND  
MANUFACTURE OF NEXT GENERATION PRODUCTS.

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