Eclipse Optical Research

Research, Engineering and Assembly Services

Companies that employ optical components and systems use Eclipse Optical Research to help them get the most out of optical technology. They know that Eclipse provides professional services to quickly and efficiently meet their optics need. Your company can benefit from Eclipse services such as:

- Optical, electro-optic and optomechanical design of conventional and micro-optical systems
- Ray tracing and lens design
- Prototype system assembly and performance evaluation
- Assembly and fabrication documentation
- Classical, physical and quantum optics research
- Coating specification, design and analysis
- U.S. and international standards compliance consultation
- Image processing
- Optical shop inspection and test
- Optical calibration procedures and systems
- Stray light reduction
- Optical alignment and troubleshooting
- Laser safety consultation
- Optical shop practices and assembly training

Why Choose Eclipse Optical Research?

When you partner with Eclipse Optical Research, you benefit from the knowledge of an optical scientist with over 14 years experience. Following a free initial consultation to determine your requirements, Eclipse can accommodate your needs from short consultations to complete product development projects. Under the direction of Dr. Mathew D. Watson, Eclipse Optical Research allows you to:

- Leverage years of training and experience when you need it, for as long as you need it
- Avoid over design and waste by having components and systems designed to meet specific performance and cost goals
- Receive documentation that incorporates specifications complying with optical industry standards (ISO and MIL)
- Benefit from the expertise of a firm that focuses solely on optic.
- Take advantage of advances in optical technology that can increase your product's performance and reduce its cost
- Minimize your technical and financial risk
- Choose the level of service you require
- Have projects completed quickly and efficiently by qualified staff
- Avoid purchasing expensive and specialized software

About the President

Dr. Mathew D. Watson, founder and president of Eclipse Optical Research, is an optical scientist with over 14 years' experience developing optical components, materials and instrumentation. Prior to founding Eclipse he worked as a technical staff member and optical engineer for several

successful manufacturing and engineering corporations. A published author, he holds a patent for electric field concentrate for helium neon (HeNe) lasers.

Dr. Watson's commercial activities include research, design, testing, drafting, programming, calibration, safety and manufacturing support. Dr. Watson does whatever is required to turn concepts into successful products.

Dr. Watson conducted his graduate studies at the University of Arizona Optical Sciences Center. Besides the core courses in physics and optics, his studies included advanced courses in laser physics, numerical analysis, optical data storage, integrated optics and lens design.

Examples of Our Work

Products

- Fiber-optic laser light sources and power meters.
- Ruggedized OEM HeNe laser tubes for military application.
- Low-cost, easy-to-use HeNe laser for general laboratory and educational use.
- Miniature non-contact surface profilometers.
- Surface flaw extraction and characterization software.
- Optical pyrometer.

Laboratory Instrumentation

- Heterodyne interferometer capable of measuring differential thermal expansivity with an absolute accuracy of 1 part in 10^11 (K^-1)

- Laser beam position monitor
- Automated detector spectral response calibration system

Systems Modeling

- Beam propagation model to optimize the design of a GRIN lens based fiber-optic beam projector
- System performance model for an InSb thermal imaging microscope operating in the 2.0 to 5.4 um wavelength band
- Measurement uncertainty model for a fiber-optic power meter
- Theoretical and Laboratory Research
- Detector response linearity
- Thermomagnetic recording process on magneto optical disks
- Glow discharge formation research in plasma tubes
- Optical measurement precision

Our Facilities

- Pentium-class computers running Windows NT 4.0 and Linux 2.0.18
- Analytic mathematics software: Mathematica 3.0.
- Lens design software: Zemax 5.0.
- McPherson 1 meter monochrometer.
- • CAD and solid modeling software: Microstation 95 and Modler (Autocad file compatible).

- C, C++ and SISAL compilers.
- Clean assembly area.

Give Us a Call

Eclipse Optical Research

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