

## Tunable Laser System (TLS) for Spectral Imaging

Spectrolight's Tunable Laser System (TLS) revolutionizes spectral imaging by providing a single tunable light source solution covering a wide spectral range from 410 to 1700 nm. This significantly reduces operating costs and simplifies the imaging process by eliminating the need for hyperspectral cameras and individual optical filters.

### Benefits:

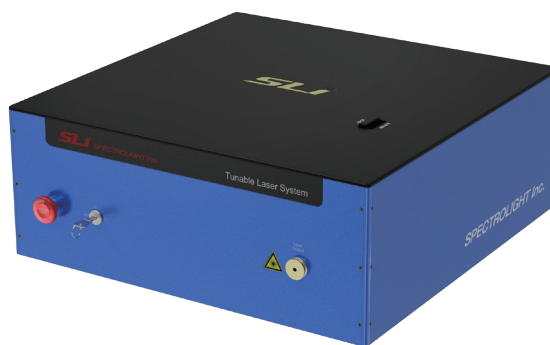
**Cost-Effective:** Minimizes the need for hyperspectral imaging components.

**Efficient:** Reduces setup times, increasing operational efficiency.

**Versatile:** One system covers a wide range of applications.



**TLS-RED** (Tunable bandwidth)

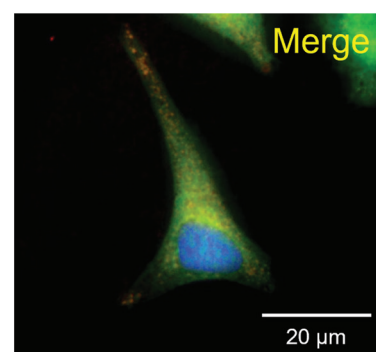


**TLS-BLUE** (Fixed bandwidth)

### Highlighted Applications:

#### Medical and Life Sciences: Fluorescence Imaging

The tunability of TLS revolutionizes fluorescence imaging by allowing a single light source to excite a variety of fluorophores, enabling complex multi-fluorophore studies easily and efficiently. This capability is critical to advancing cell and molecular biology research.



**MEDICAL & LIFE SCIENCE**



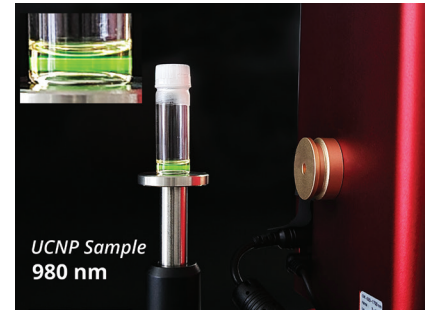
**FORGERY DETECTION**

#### Forgery Detection

In authentication and forensics, TLS helps detect counterfeit products by analyzing the spectral signatures of various materials. The wide spectral range allows accurate identification of genuine and counterfeit products.

### Quantum and Nano Technology: UCNP Imaging

TLS facilitates cutting-edge research in quantum dots and upconversion nanoparticles (UCNPs) by providing the precise and tunable excitation needed to explore the unique properties of these materials. These applications are pivotal for developing new materials for imaging, security, and solar energy.



QUANTUM & NANO  
TECHNOLOGY



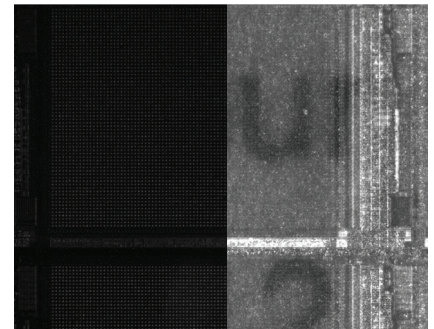
NON-DESTRUCTIVE  
TESTING

### Industrial Imaging and Non-destructive Testing

From detecting manufacturing defects to identifying contaminants in food production, TLS provides a non-invasive solution to ensure product quality and safety without the need for multiple imaging setups.

### Inspection in the Semiconductor Field

The precision and wide spectral range of TLS make it an invaluable tool for semiconductor inspection to identify microscopic-level defects that can affect the functionality of semiconductor devices.



INSPECTION

### Conclusion:

Tunable laser systems (TLS) are a breakthrough in spectral imaging, offering unparalleled flexibility, precision, and cost-effectiveness for a wide range of applications. Acting as a comprehensive and tunable light source, TLS significantly simplifies the imaging process, reducing reliance on multiple expensive instrument adjustments. Its transformative impact ranges from strengthening research capabilities in life sciences to improving production quality and safety in industrial settings. TLS, therefore, represents a pivotal advance in the spectral imaging domain, setting new standards for versatility and efficiency.