



The Standard in Optical Filters for Biotech & Analytical Instrumentation

**LaserMUX™**

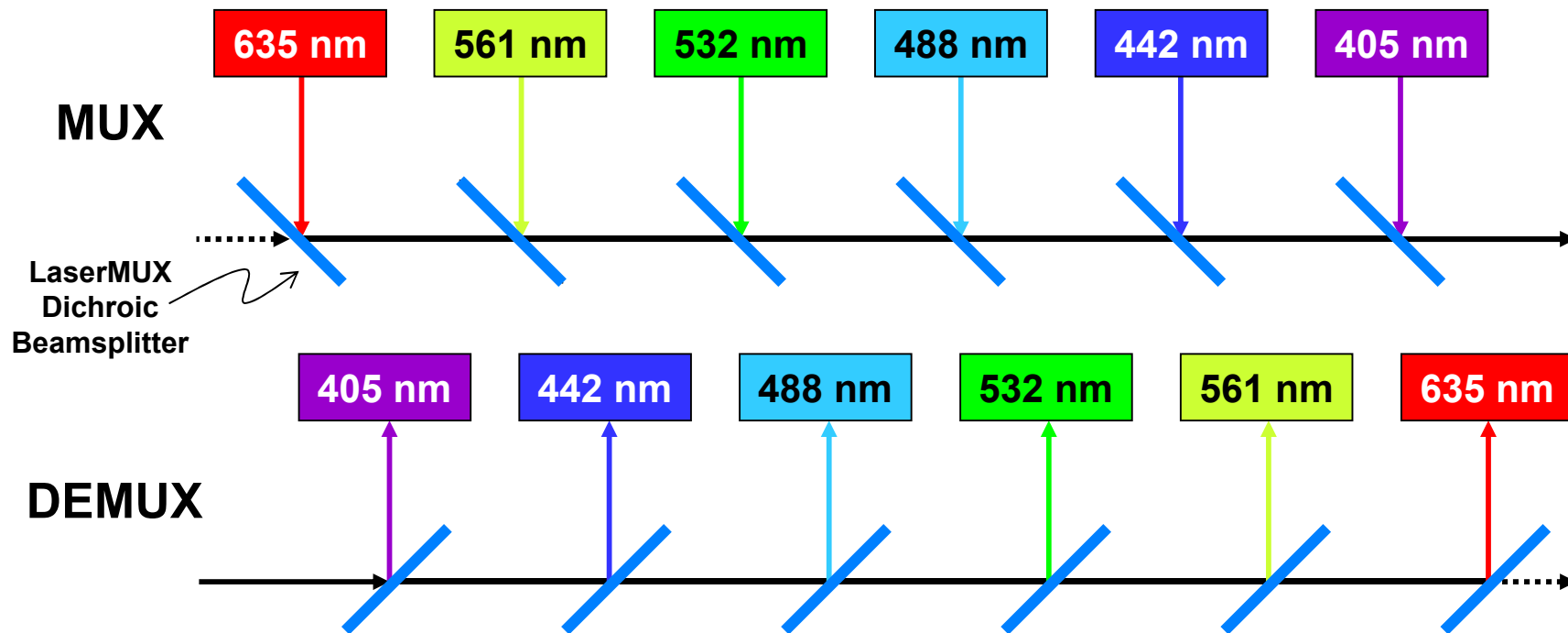
**Laser combiner/beamsplitter filters**

**August 2008**



# LaserMUX™ concept

- The “LaserMUX” family is a set of laser multiplexing dichroic beam combiners, which allows for the combination of multiple laser wavelengths into a single beam (MUX), and when used in reverse, also allows for DEMUX.
- Filters are arranged depending on the desire to MUX or DEMUX, with the longer-wavelengths transmitted and shorter wavelengths reflected (see below)



# LaserMUX™ dichroic beam combiner/splitters

- 45° dichroic beam combiner / beamsplitter for laser-based fluorescence microscopes and instruments and a wide variety of other multi-laser laboratory applications
- Hard-coating reliability to withstand high laser intensities and harsh environments
  - Based on ion-beam-sputtered coatings that are proven to have J/cm<sup>2</sup> laser-damage-thresholds and to pass rigorous MIL-spec tests
- Minimal impact on laser beam collimation
  - “contribute less than one Rayleigh Range of shift in focus (relative to a perfectly flat mirror) at the focal plane of a microscope objective or other focusing lens after reflecting a collimated Gaussian laser beam with a waist diameter of up to 2.5 mm”
- Industry-standard 25 mm diameter x 3.5 mm thick black-anodized aluminum ring with generous 22 mm clear aperture



Five Year Warranty

# LaserMUX™ applications

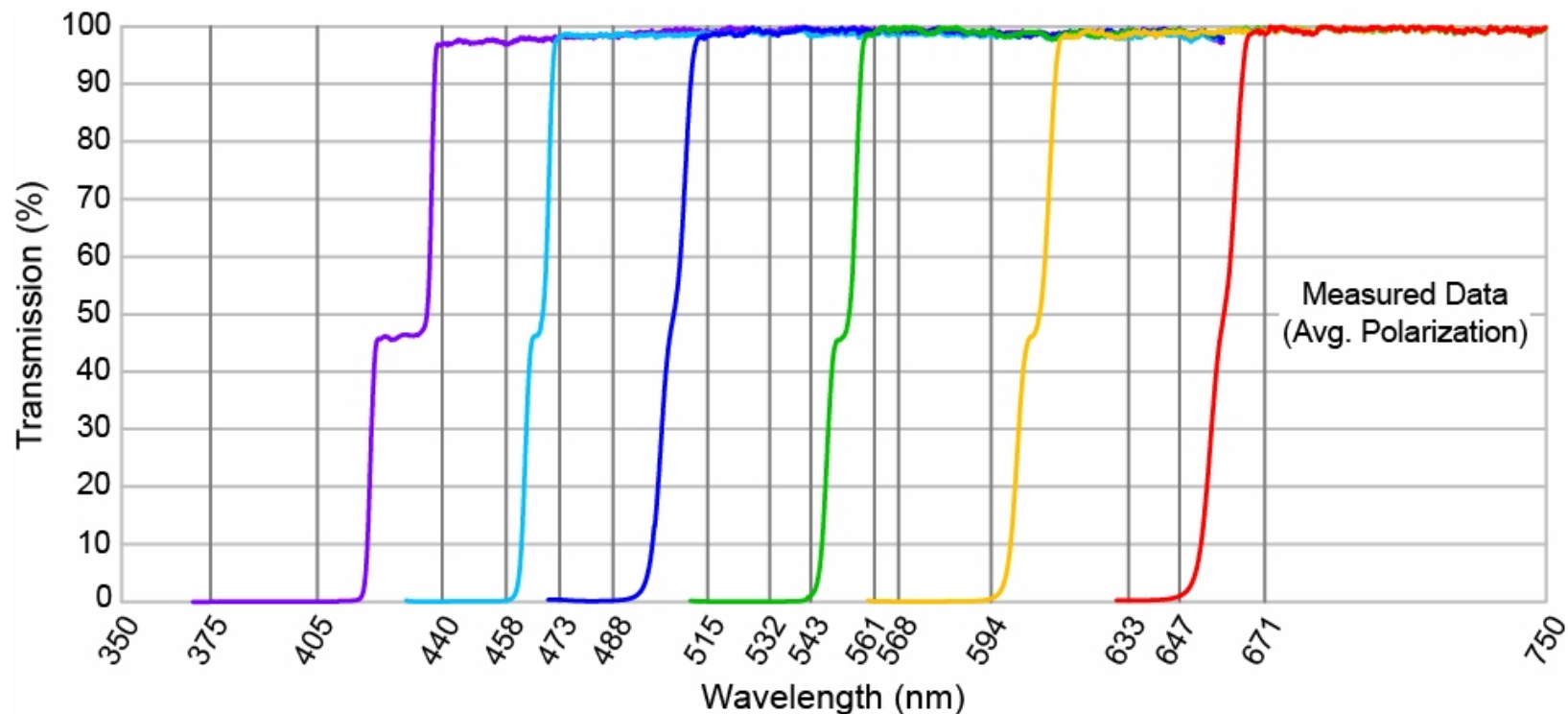
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- Combine multiple laser beams launched into a confocal, TIRF, or other laser-based **fluorescence microscope**
- Combine multiple laser beams for other fluorescence instruments, such as **flow cytometers**
- Separate multiple lines from a single laser (e.g., 458, 488, 514, 568, and 647 nm lines from a single **Kr-Ar ion laser**)
- Wide variety of laboratory analytical applications requiring combination or separation of multiple laser beams



# LaserMUX™ – true Semrock performance!

- LaserMUX filters are anti-reflection (AR) coated and exhibit superb reflection and transmission of the most popular laser lines for fluorescence and other laser spectroscopy applications
- Performance guaranteed for all laser polarizations



# LaserMUX™ wavelength specifications

Filter	Reflected Laser Wavelengths	Reflection Band (nm)	Transmitted Laser Wavelengths (nm)	Nominal Passband (nm)
<a href="#">LM01-427-25</a> <b>NEW!</b>	375 +/- 3 nm 405 +10/-5 nm	372.0 – 415.0	440 +3/-1, 457.9, 473 +5/-0, 488 +3/-2, 514.5, 515.0, 532, 543.5, 561.4, 568.2, 594.1, 632.8, 635 +7/-0, 647.1	439.0 – 647.1
<a href="#">LM01-466-25</a> <b>NEW!</b>	440 +3/-1 nm 457.9 nm	439.0 – 457.9	473 +5/-0, 488 +3/-2, 514.5, 515.0, 532, 543.5, 561.4, 568.2, 594.1, 632.8, 635 +7/-0, 647.1	473.0 – 647.1
<a href="#">LM01-503-25</a> <b>NEW!</b>	473 +5/-0 nm 488 +3/-2 nm 1064 nm	473.0 – 491.0	514.5, 515.0, 532, 543.5, 561.4, 568.2, 594.1, 632.8, 635 +7/-0, 647.1	514.5 – 647.1
<a href="#">LM01-552-25</a> <b>NEW!</b>	514.5 nm 515.0 nm 532 nm 543.5 nm	514.5 – 543.5	561.4, 568.2, 594.1, 632.8, 635 +7/-0, 647.1, 671, 676.4, 780 – 790	561.4 – 790.0
<a href="#">LM01-613-25</a> <b>NEW!</b>	561.4 nm 568.2 nm 594.1 nm	561.4 – 594.1	632.8, 635 +7/-0, 647.1, 671, 676.4, 780 – 790	632.8 – 790.0
<a href="#">LM01-659-25</a> <b>NEW!</b>	632.8 nm 635 nm +7/-0 nm 647.1 nm	632.8 – 647.1	671, 676.4, 780 – 790	671.0 – 790.0

# 532/1064 splitting

- The LaserMUX LM01-503 filter also provides a convenient way to separate a 532 nm second-harmonic laser beam from a 1064 nm fundamental beam in a Nd:YAG laser

