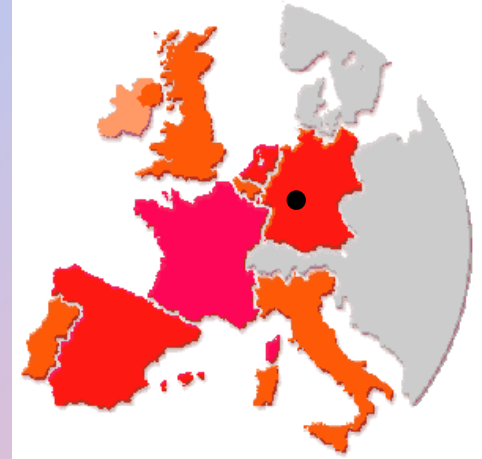




VENTEON

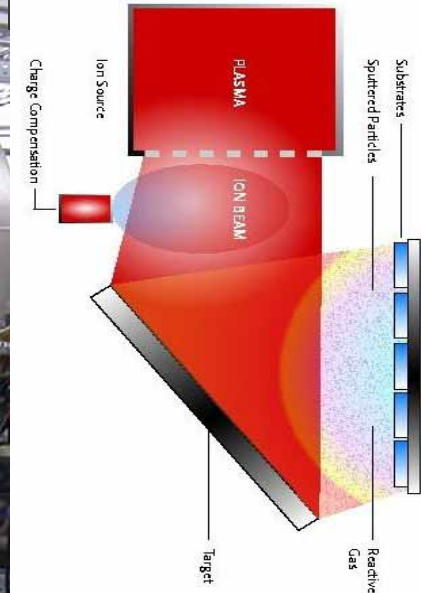
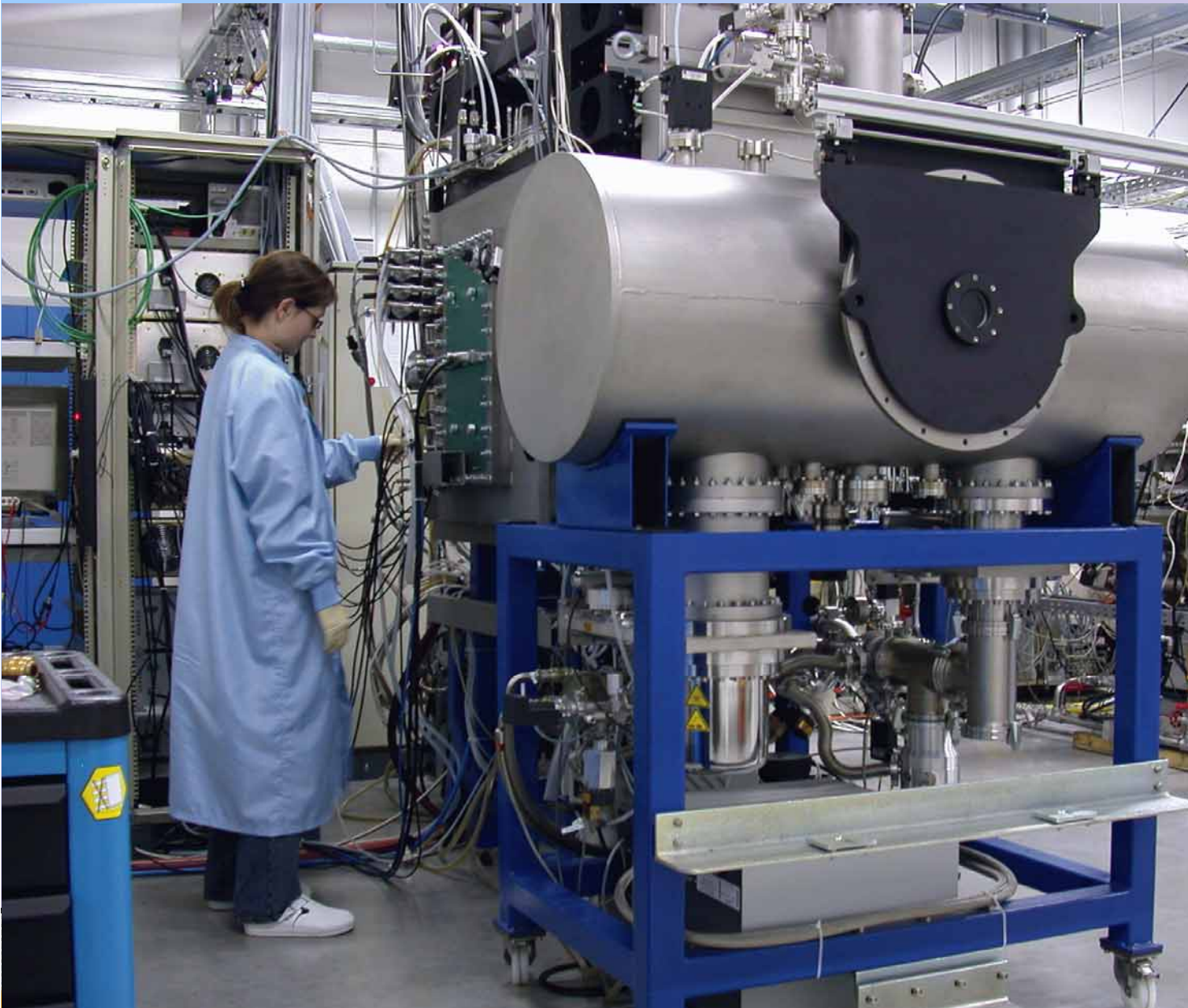
fs-Laser family



NanoLayers Optical Coatings GmbH
Germany

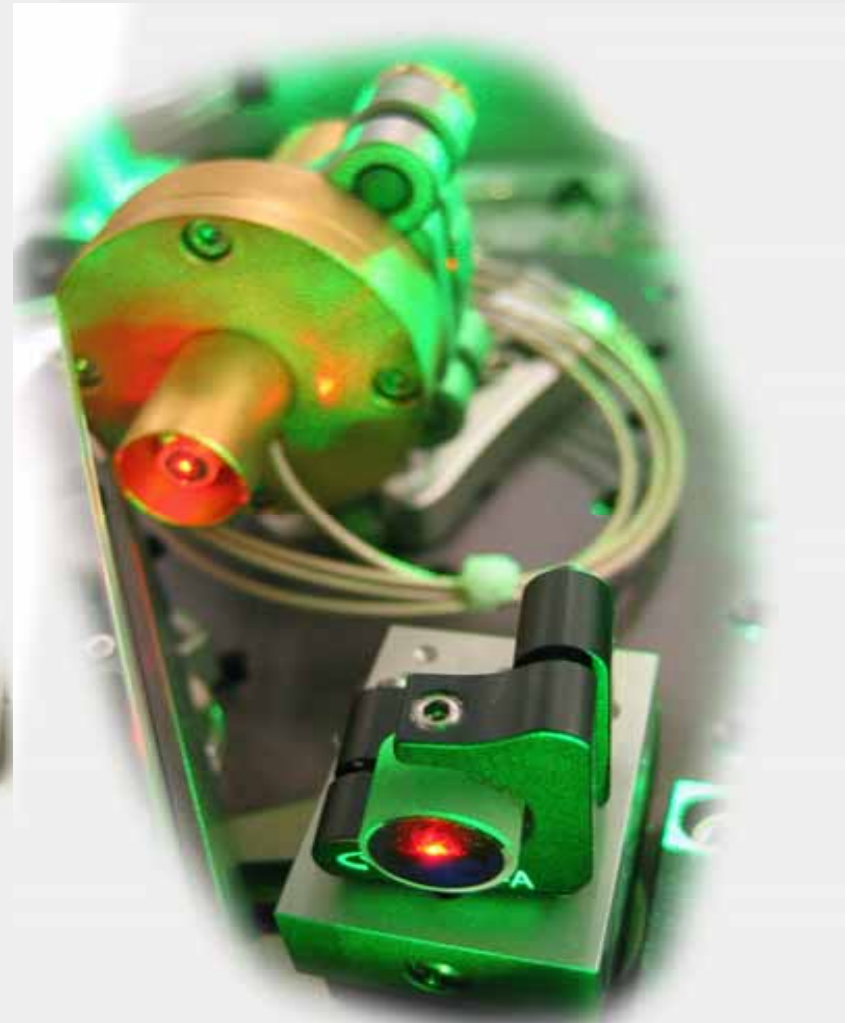
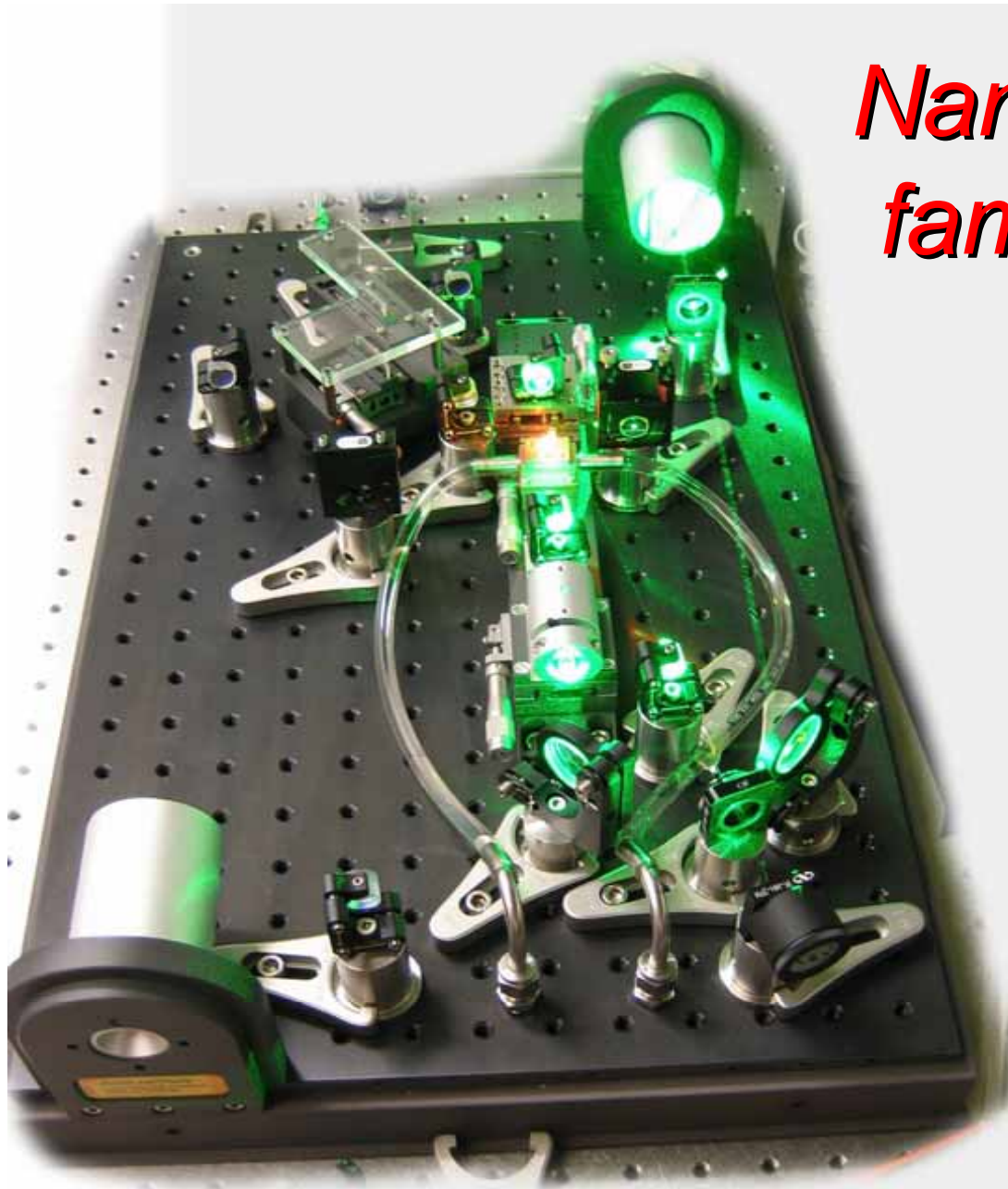


Nanolayers Optical Coatings GmbH
Germany



- NANO | STOKES**
Edge Filters for Raman Spectroscopy
- NANO | FLEX**
High-Power Laser Mirrors
- NANO | CHORD GVD**
Mirrors for Ultrashortpulse Lasers
- VENTEON | PULSE**
Laser Kit Sub < 8 fs

Nanolayers' fs-laser family



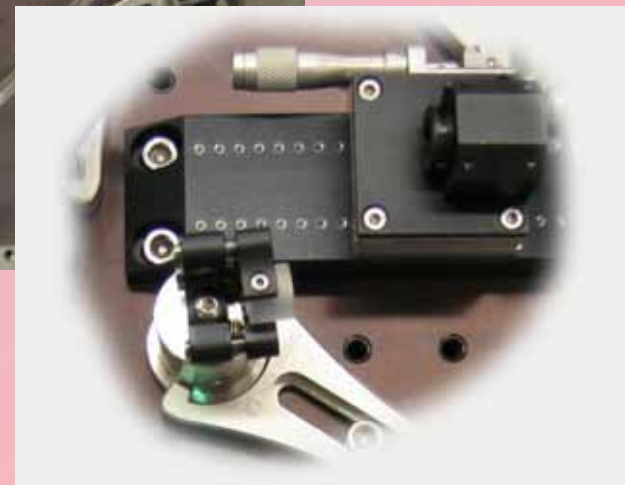


What kind of lasers do we offer ?

Our lasers are:

- solid-state, pulsed, ultrafast Titanium-Sapphire laser with sub-8fs pulse duration
- ultra-broadband non tunable spectra extending from the red visible range (wavelength 600nm) to the infra-red (wavelength 1200nm)
- standard Z-folded oscillator design with pulse repetition frequencies from about 80MHz to 200MHz
- 5-6W pump laser necessary:
 - * 532nm (solid state: Coherent Verdi, Spectra Physics Millennia, ELS, SOC)
 - * 517nm (Ar-Ion gas laser)

How the laser looks like





Special features of the laser - important for customer

- 1.) Short pulse durations below 8fs down to 5fs*
- 2.) Optical bandwidths of several hundred nanometers*
- 3.) Stable, special Aluminum breadboard and other custom designed mechanics*
- 4.) Complete setup is watercooled - all stainless steel tubing for corrosion free long lifetime*
- 5.) Provision to purge laser with nitrogen - if necessary*
- 6.) High-quality components, for example from Newport, Thorlabs, NewFocus*
- 7.) In-house mirror design and fabrication in Nanolayers own facility*
- 8.) Great variability to accomodate custom specific demands:
repetition frequency, power level, repetition rate control and synchronization, carrier-phase control, ...*



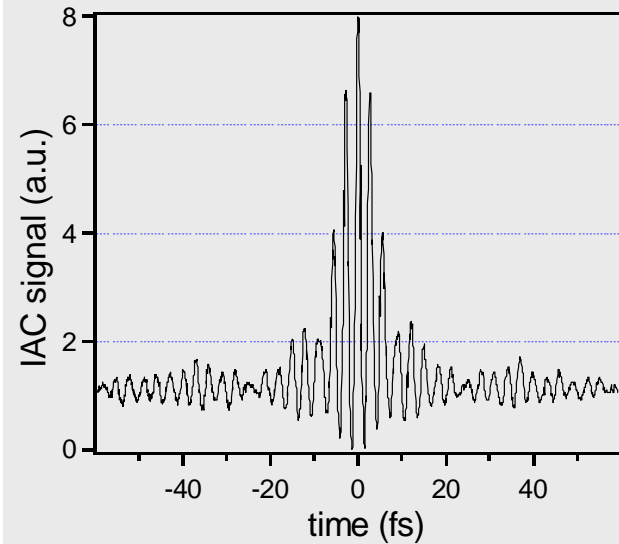
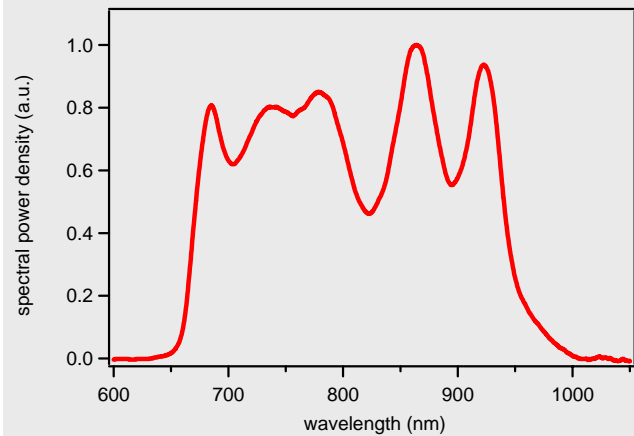
Advantages in comparison to our competitors (Femtolasers, Kapteyn & Murnane, GigaOptics)

- 1.) Shortest pulses and broadest spectra available worldwide !!*
- 2.) Strategic advantage because we fabricate the important fs-optics we use in our oscillators.*
- 3.) Complementary, we offer special fs-optics that are designed to work together with our fs-laser family: broadband beam splitter, mirrors for external dispersion compensation,*
- 4.) Flexible, modular setup to adapt to specific needs of our customers*
- 5.) Close relationship to ultrafast-laser research group at MIT/USA*

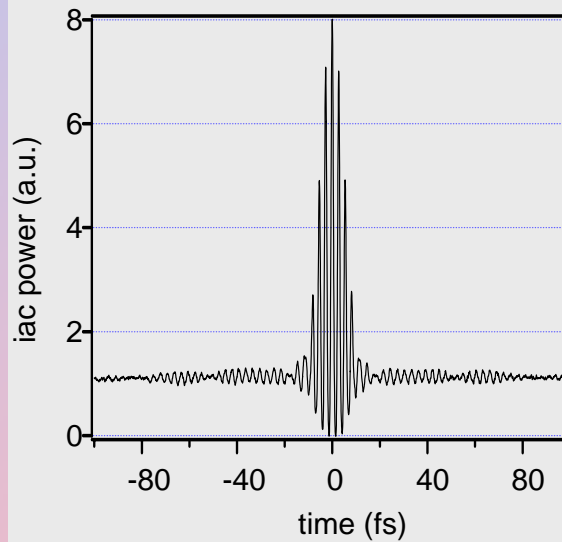
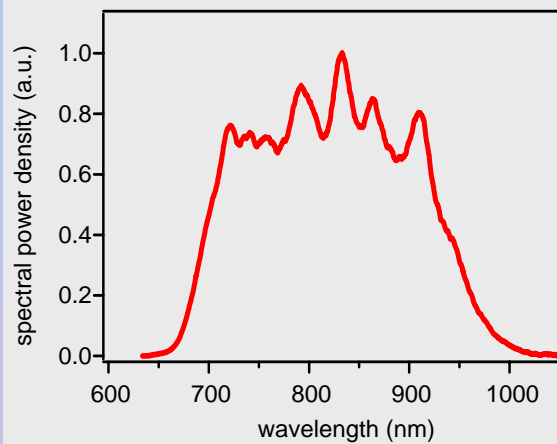


Venteon product range

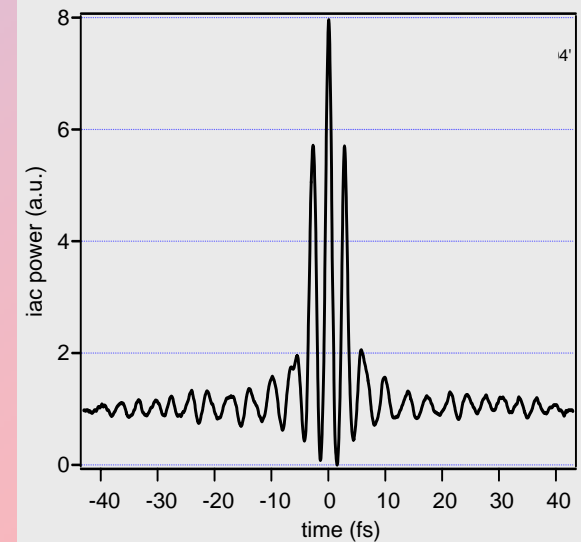
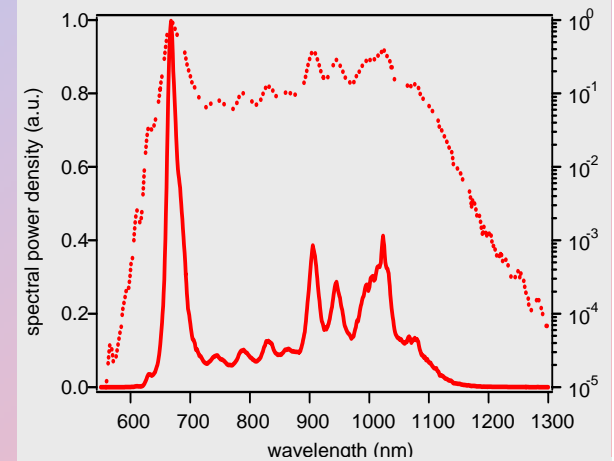
Standard Venteon & Highpower option



Venteon SE „Spectrally Even“



Venteon OS „Octave-Spanning“





Applications - mainly in research

- 1.) Time-resolved spectroscopy down to 5fs to probe dynamics in solids, and in chemistry and biology (Four-Wave mixing, Pump probe, ...).*
- 2.) Biomedical imaging in life sciences: Optical Coherence Tomography (OCT), Multi-photon imaging, Two-photon-excited multi-color bio-imaging, Fluorescence lifetime imaging, ...*
- 3.) Electro-optic sampling of electrical circuits.*
- 4.) Seed-oscillator for amplifiers (Multipass, Regen, Parametric Amplification). (Prof. Louis DiMauro / Ohio State)*
- 5.) Pulse-shaping for „Coherent Control“ experiments in Chemistry and Biology (Prof. M. Dantus / Michigan).*
- 6.) fs-laser as frequency ruler - Optical Frequency Metrology (AIST/Japan / MIT / NIST)*
- 7.) Nonlinear frequency conversion (fs-pulses in the blue spectral range, DFG for IR pulses around 2 μ m)*

Current developments & future products

