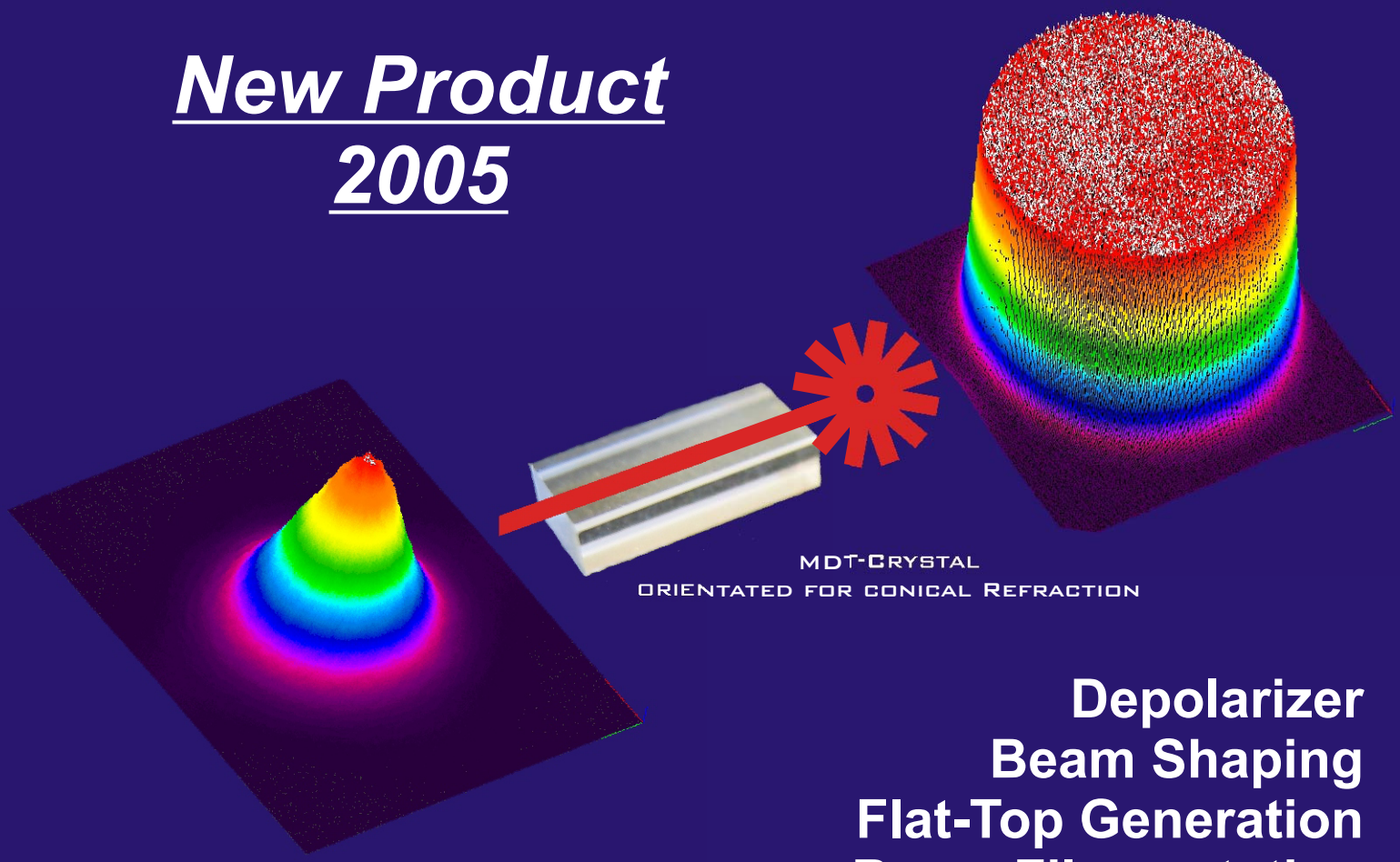
Beam-Shaper

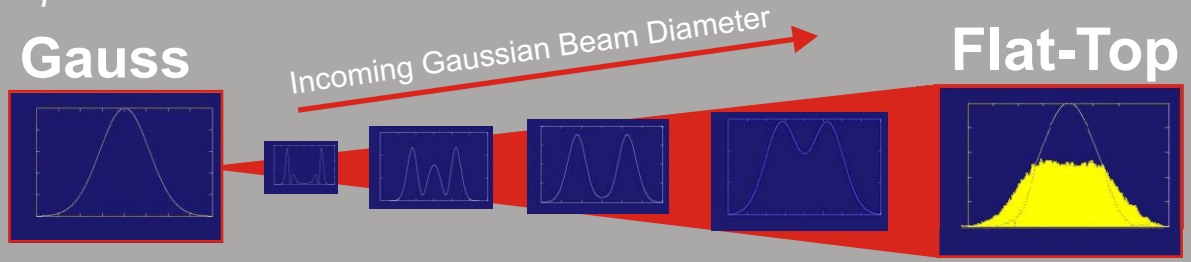
New Product 2005



MDT-Crystal
orientated for conical Refraction

Depolarizer
Beam Shaping
Flat-Top Generation
Beam Filamentation
Single Crystal Element
Based on the Effect of Conical Refraction

Principle:



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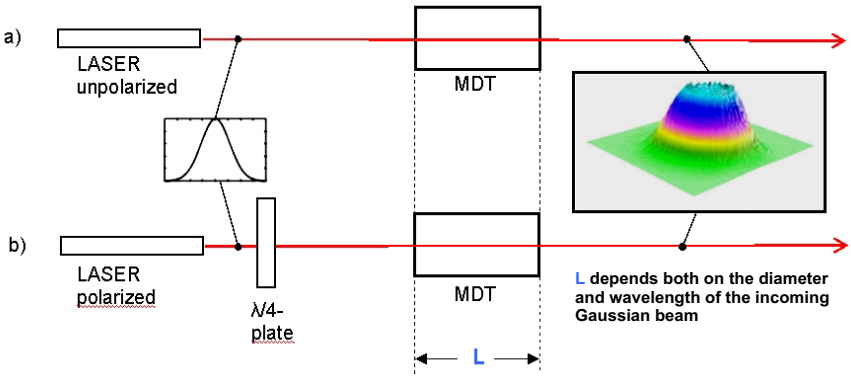
Beam-Shaper

Special orientated monoclinic double tungstate elements transform an incoming circular or unpolarized Gaussian beam into other beam profiles like a hollow light cylinder or a flat-top.



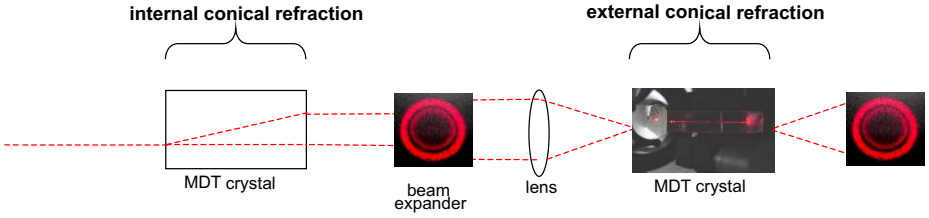
Technical Specifications:
Material: Undoped Monoclinic Double Tungstate
Length: 4 to 20 mm (bigger or smaller lengths on request)
Aperture: 3 x 3 mm (bigger or smaller apertures on request)
Wavelength: 340 to 5000 nm
Transmission: >98 % (with AR-coating)
Requirements to incoming laser beam: circular or unpolarized, low divergence, Gaussian shape

Standard Crystals for Flat-Top Generation
Wavelength Range 375 – 1064 nm (other beam diameters on request)

	MDT 4,0 x 3,0 x 3,0 mm	MDT 6,0 x 3,0 x 3,0 mm	MDT 8,0 x 3,0 x 3,0 mm	MDT 10,0 x 3,0 x 3,0 mm
[nm]	Required incoming beam diameter [µm]	Required incoming beam diameter [µm]	Required incoming beam diameter [µm]	Required incoming beam diameter [µm]
375	510	780	1030	-
411	460	700	930	1060
457	430	640	860	1070
488	410	620	820	1040
532	400	600	800	1010
633	380	570	760	960
1064	360	540	730	900

Beam Filamentor

Under certain conditions two combined MDT elements with special orientation lead to internal conical refraction in the first and external conical refraction in the following element. External conical refraction means that the beam passes the crystal as a thin line, with the diameter of the focus spot onto the entrance facet, without divergence. Behind the exit facet the beam spreads again into a cone.



Technical Specifications:
Material: Undoped Monoclinic Double Tungstate
Length: 20 mm (bigger on request)
Aperture: 3 x 3 mm (bigger or smaller apertures on request)
Wavelength: 420 to 1064 nm
Transmission: 98 % (with AR-coating)
Requirements to incoming laser beam: circular or unpolarized, low divergence, Gaussian shape, diameter <200 µm

Education Kit
to demonstrate internal and external conical refraction. Consisting of two mounted special orientated MDT crystals and all required optical and mechanical components this kit is specified for 420 - 1064 nm.

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