ADVANCED MATERIALS

Supporting Information

for

Advanced Materials, adma.200400451

© Wiley-VCH 2005
69451 Weinheim, Germany

Supporting Information

High Efficiency and Quadratic Nonlinear Optical Properties of a Fully Optimized 2D Octupolar Crystal Characterized by Nonlinear Microscopy

V. Le Floc'h, S. Brasselet J. Zyss B.R. Cho, S.H. Lee, S.-J. Jeon, M. Cho, K.S. Min, and M.P. Suh

Experimental set-up and polarization calibration

The experimental set-up is further detailed in Fig. S1a. The resulting spectrum given in Fig. S1b exhibits the SHG peak at half the incident wavelength, well separated from the fluorescence emission band.

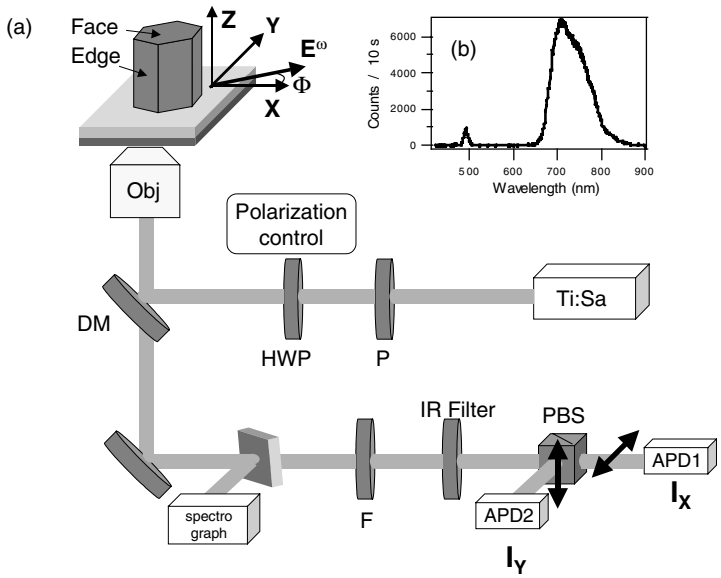

Figure S1. a) Nonlinear microscopy setup: HP Filter: filter rejecting visible light; P: polarizer; HWP : rotating half-wave plate; Obj: Objective (×60, NA=1.4); DM: dichroic mirror; F: filter selecting either SHG signal or TPF signal; IR filter: filter rejecting the residual incident laser beam; PBS: polarizing beam splitter; APD: avalanche photodiode. b) Emission spectrum of TTB crystal upon two photon excitation at 987nm. ($I_X = S_X$; $I_Y = S_Y$).

The calibration of the nonlinear microscope efficiency is retrieved from the polarization measurements on a DAST crystal lying on its [001] face, which give the polar patterns represented in Fig. S2.

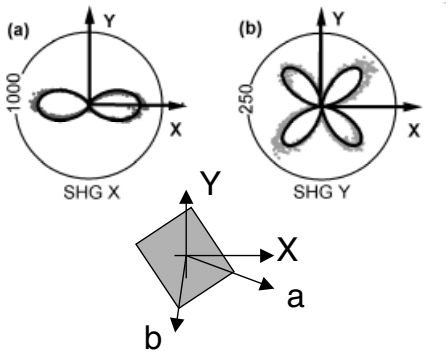

Figure S2. Polar diagrams giving the SHG intensities ((a): S_X; and (b): S_Y) as functions of the Φ angle varying from 0° to 360°, obtained with a DAST reference crystal lying along its [001] face, with an orientation of its

(*a*,*b*) axes as indicated. Experimental data have been obtained with an incident beam power of 18μW at 1028nm and the scale is in counts / 100 ms. The calculated fits in continuous line have been obtained with the (3.2°, 0°,0°) orientation parameters. The fits accounts for the following DAST crystals coefficients, which are consistent with the DAST symmetry [104]: $\beta_{111} = 0.33\,\beta_{333} = 0.2\,\beta_{122} = 0.48\,\beta_{133} = 0.70\,\beta_{311} = 0.13\,\beta_{322} = 1.2 \times \|\beta\|$.