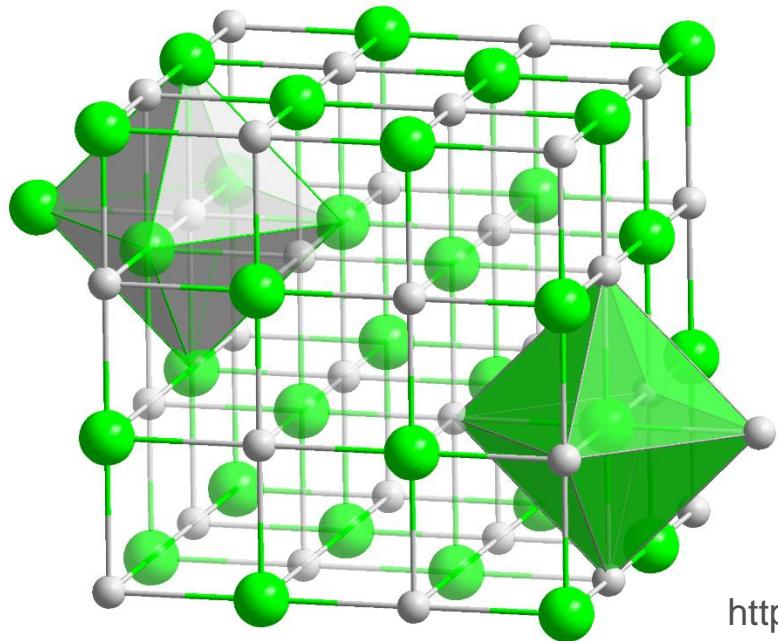
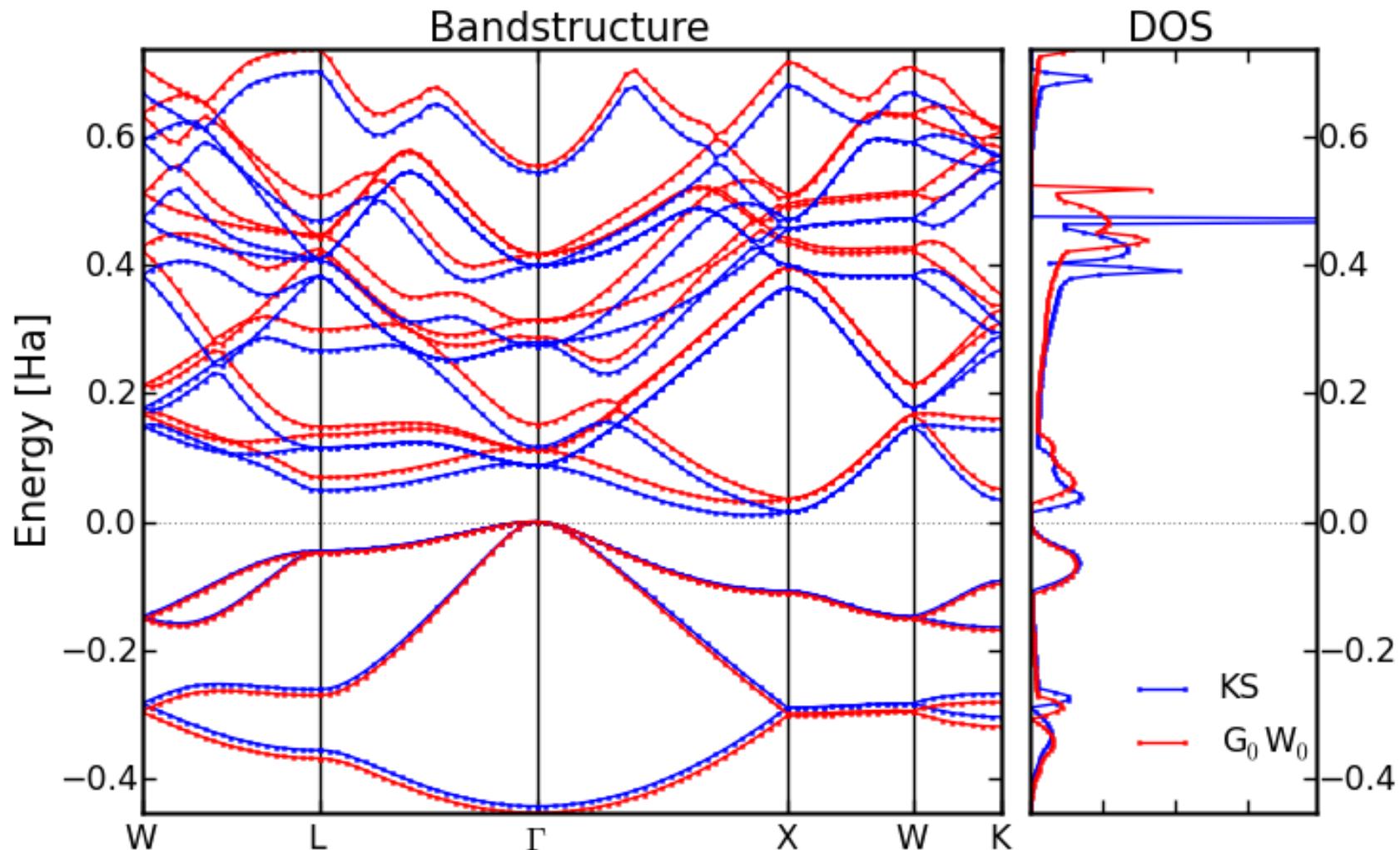


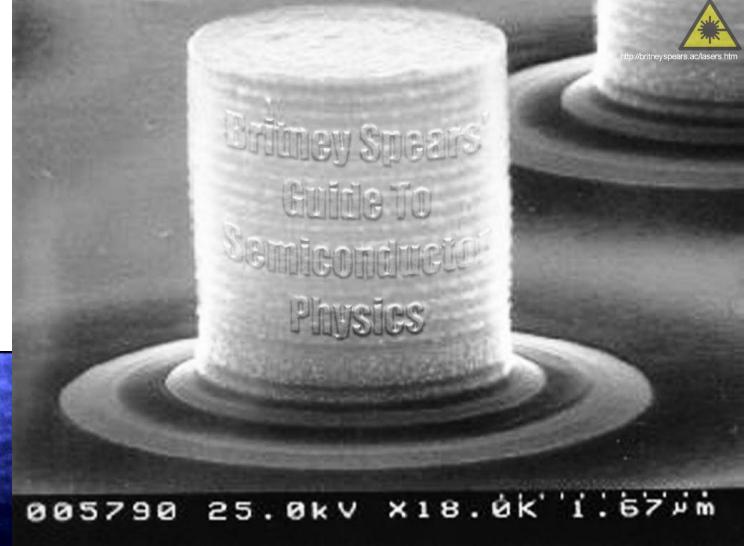
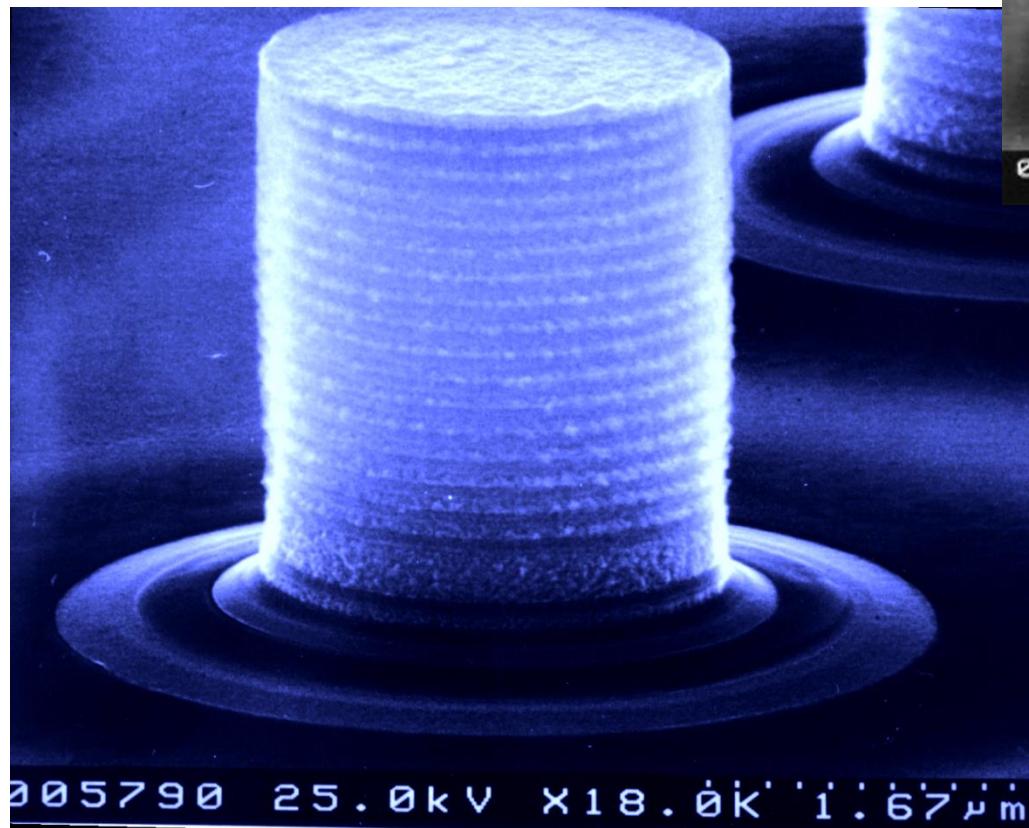
Vom Atom übers Molekül zum Kristall

Kristallstruktur

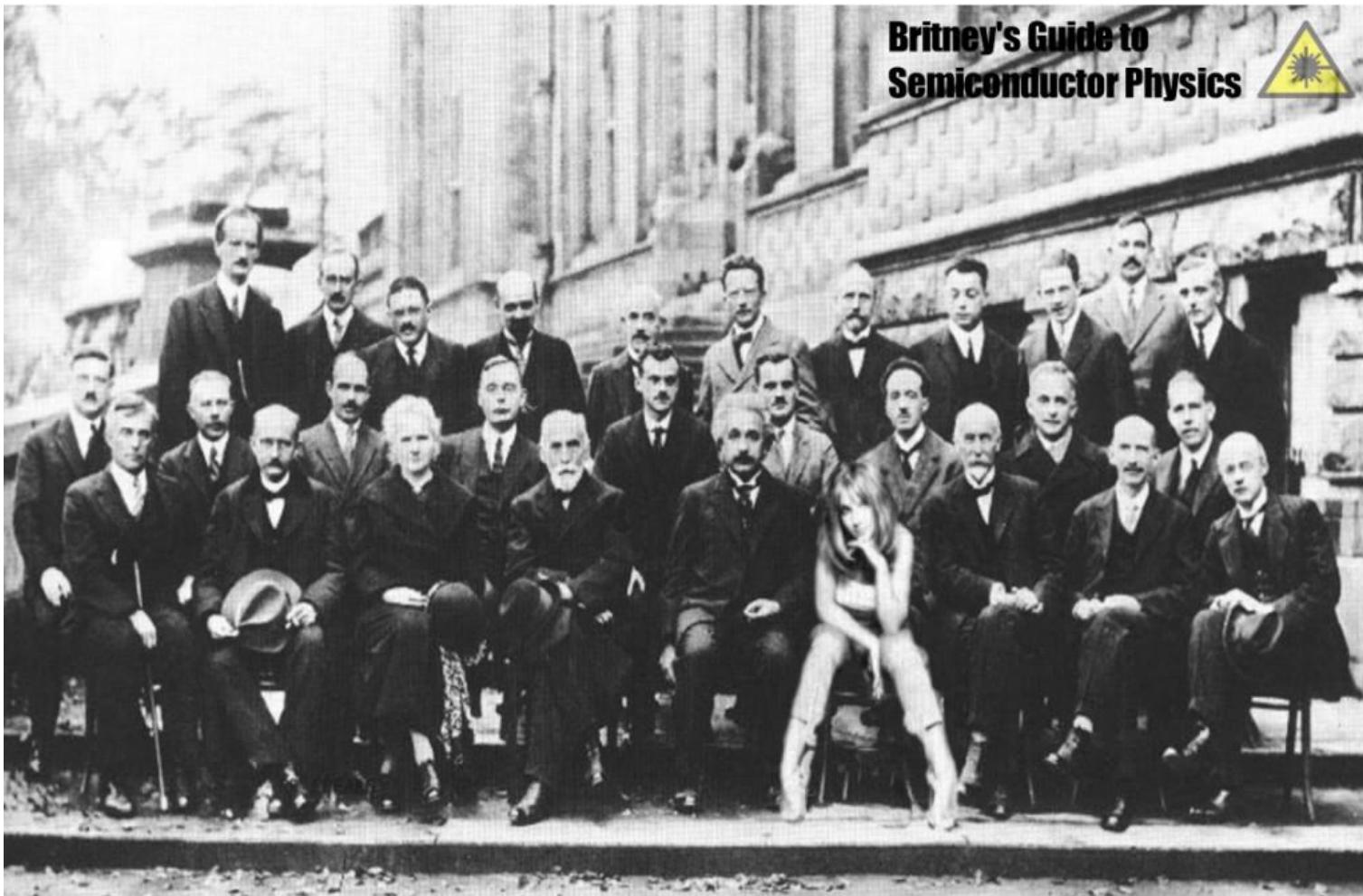


<https://de.wikipedia.org/wiki/Natriumchlorid>

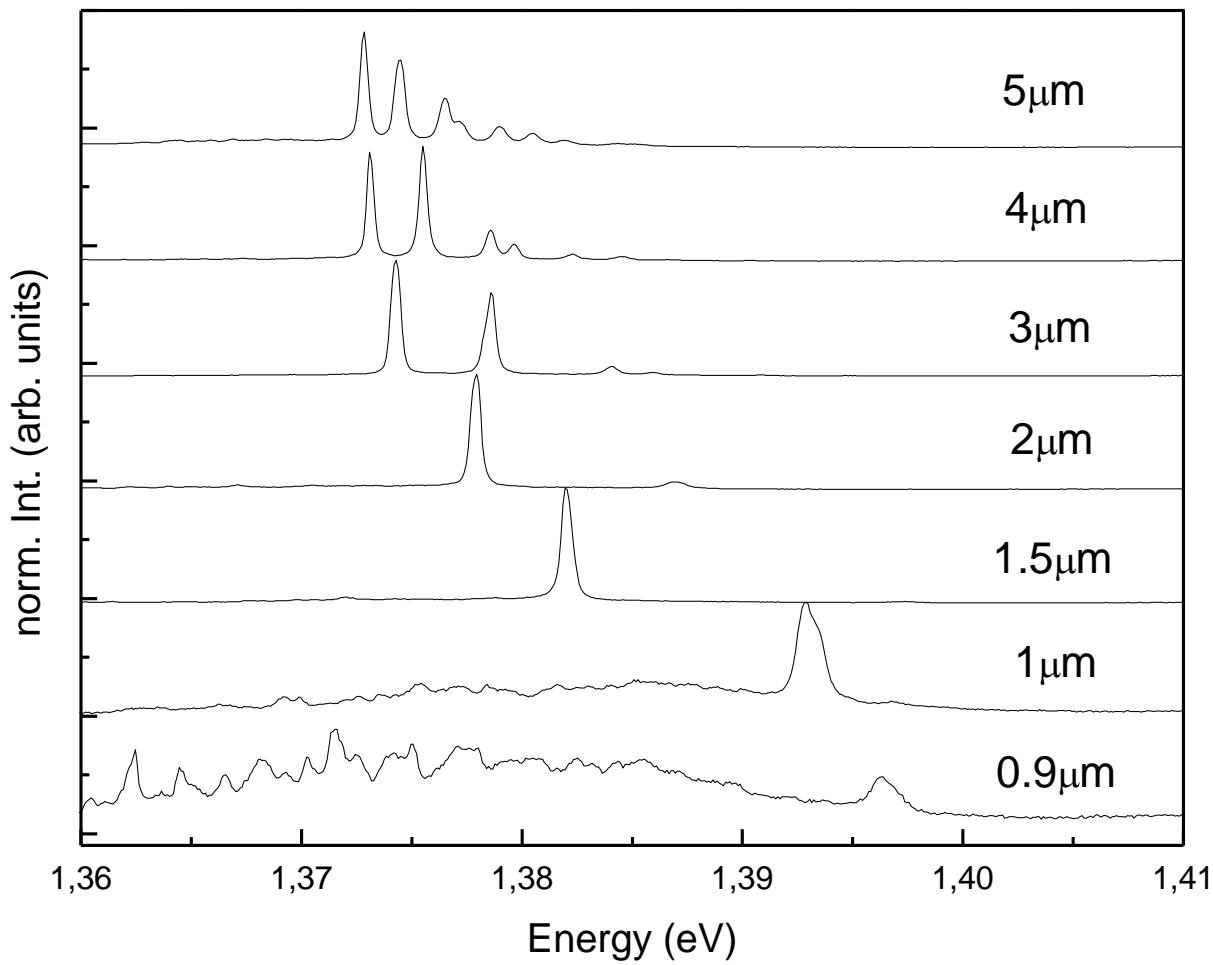




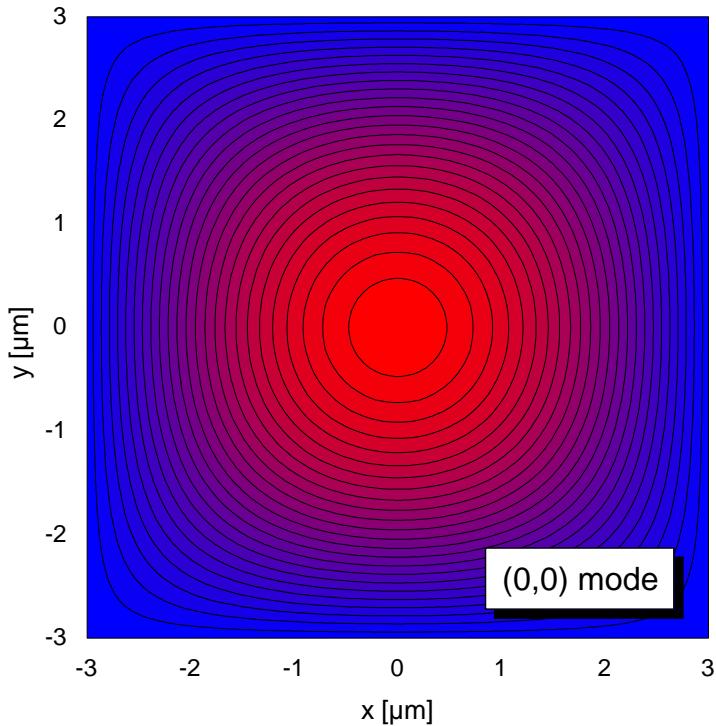
**3D confinement of light
quasi-atomic system: „photonic atom“**



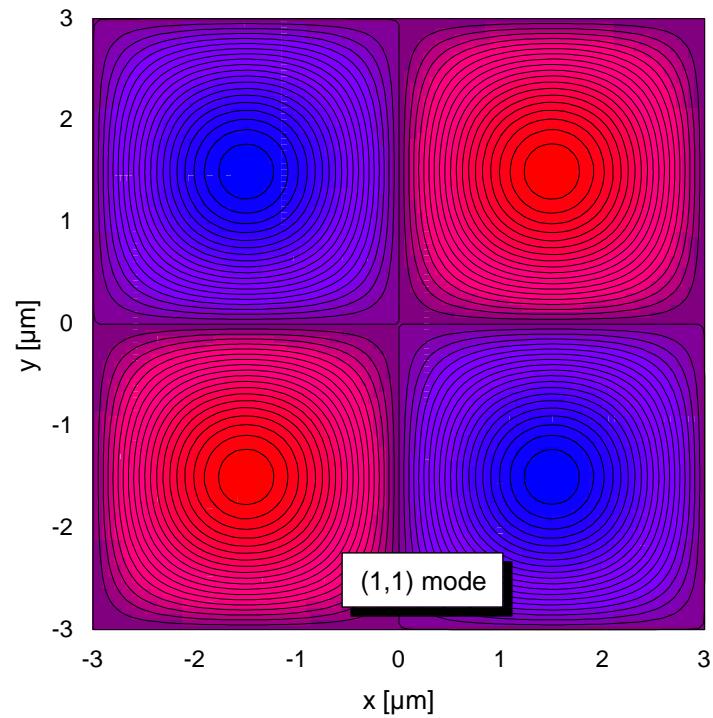
A. PICCARD E. HENRIOT P. EHRENFEST Ed. HERZEN Th. DE DONDER E. SCHRÖDINGER E. VERSCHAFFELT W. PAULI W. HEISENBERG R.H. FOWLER L. BRILLOUIN
P. DEBYE M. KNUDSEN W.L. BRAGG H.A. KRAMERS P.A.M. DIRAC A.H. COMPTON L. de BROGLIE M. BORN N. BOHR
I. LANGMUIR M. PLANCK Mme CURIE H.A. LORENTZ A. EINSTEIN B. SPEARS C.H.E. GUYE C.T.R. WILSON O.W. RICHARDSON



optical mode spectrum



electric field distributions of the confined optical modes

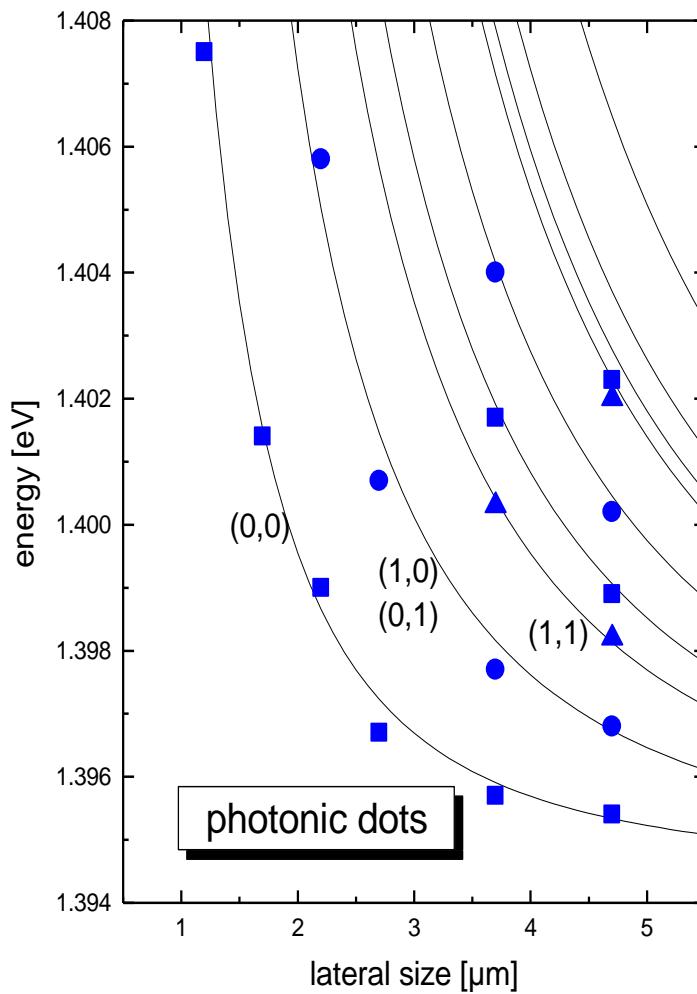


characterisation of modes by two eigenvalues

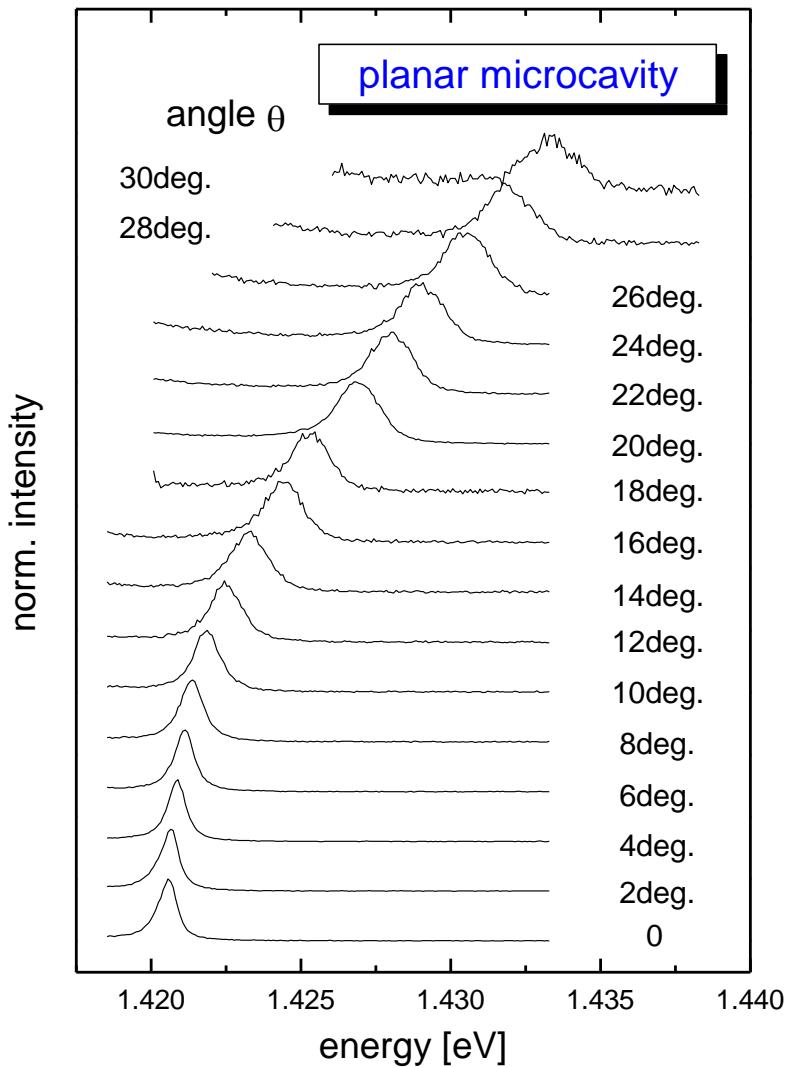
$$(n_x, n_y)$$

energies of
optical modes

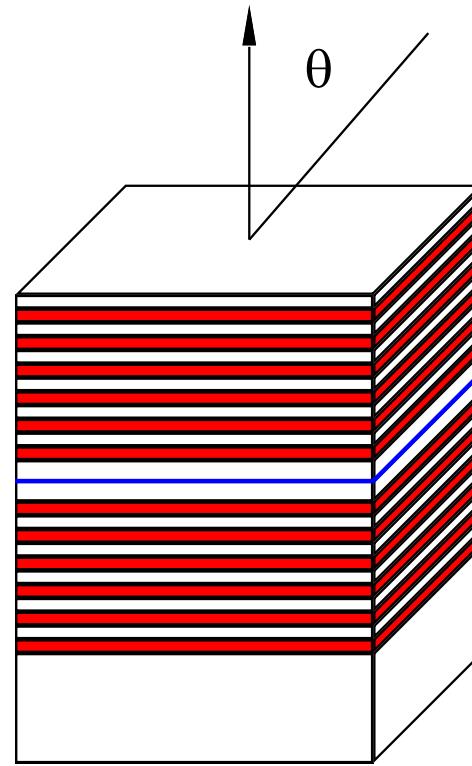
$$E_{n_x, n_y} = \sqrt{E_0^2 + \frac{\hbar^2 c_0^2}{\epsilon} (q_x^2 + q_y^2)}$$



$$q_i = \frac{\pi}{L} (n_i + 1), i = x, y$$

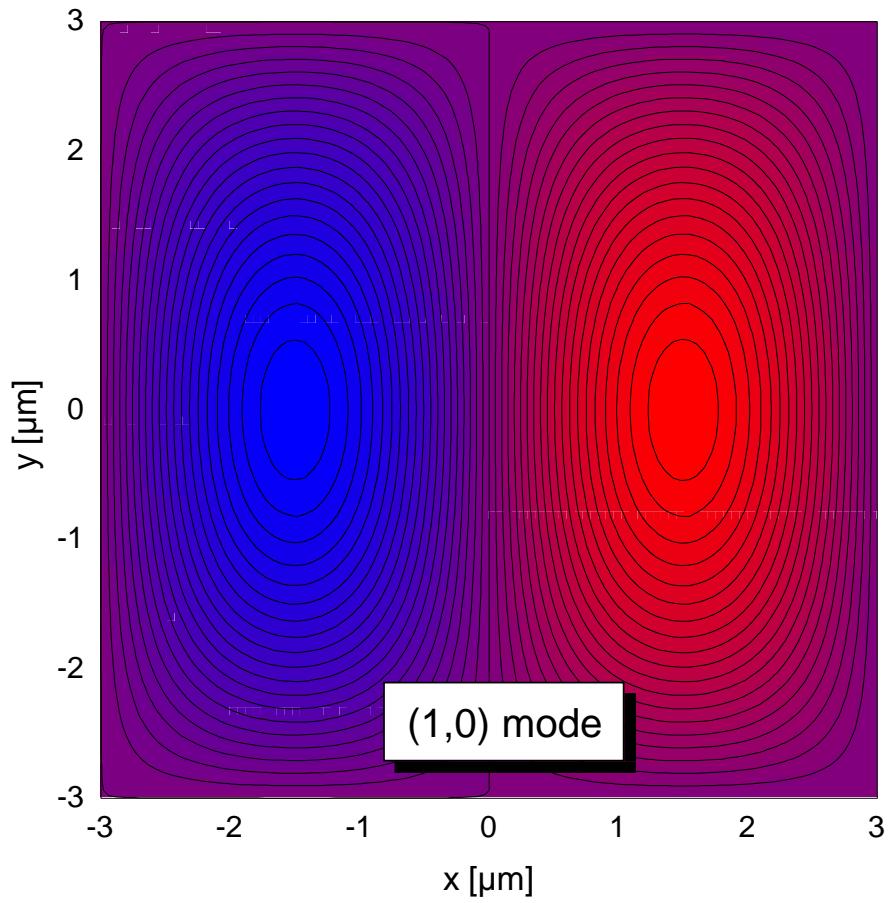
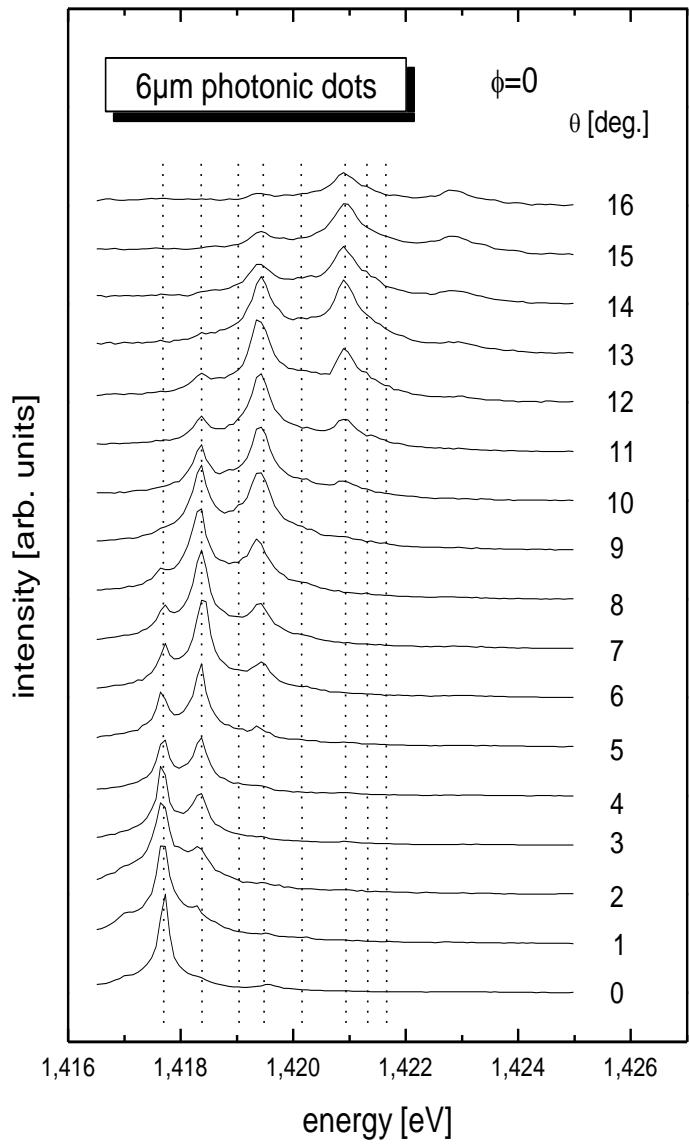


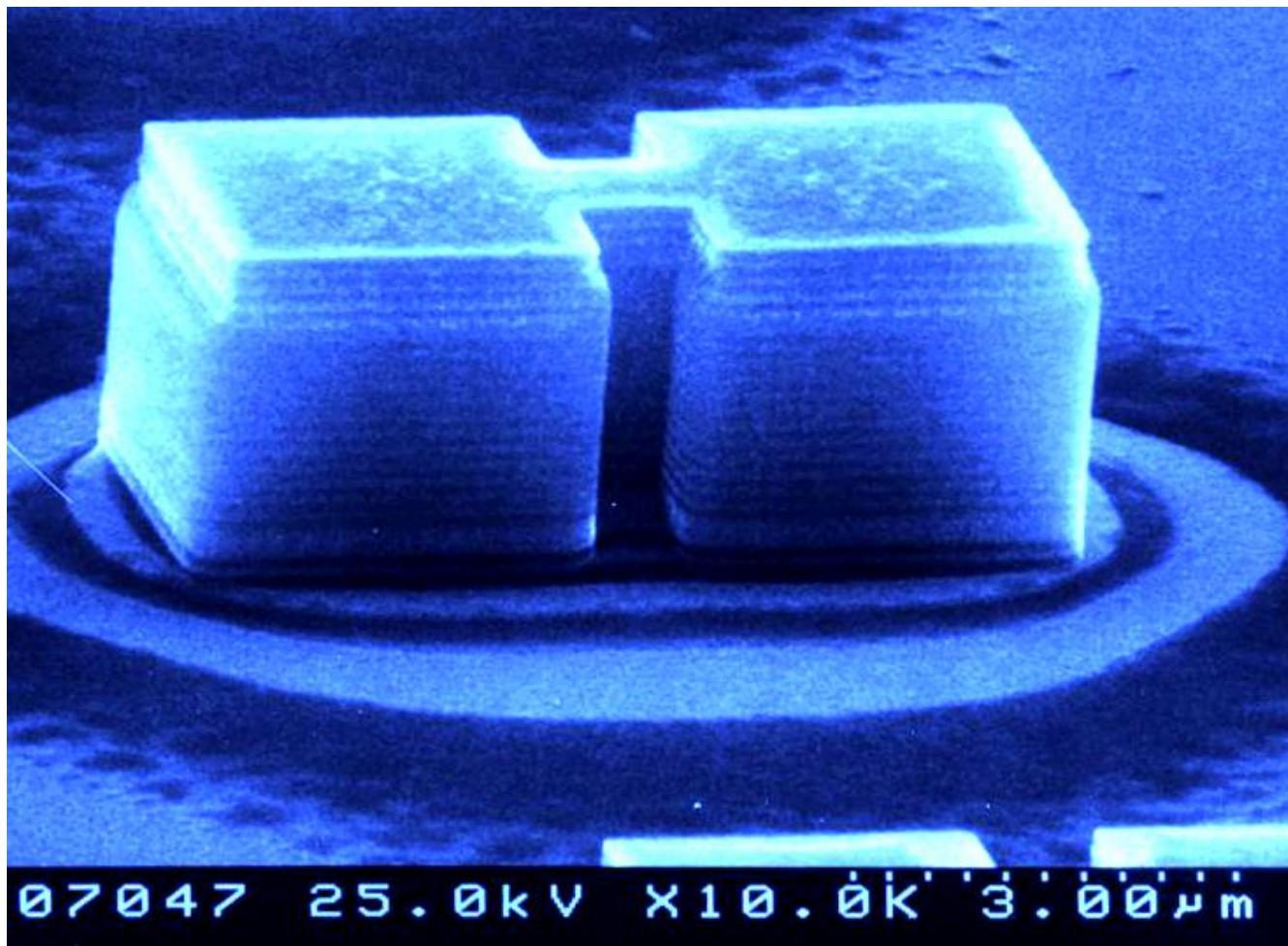
unconfined system



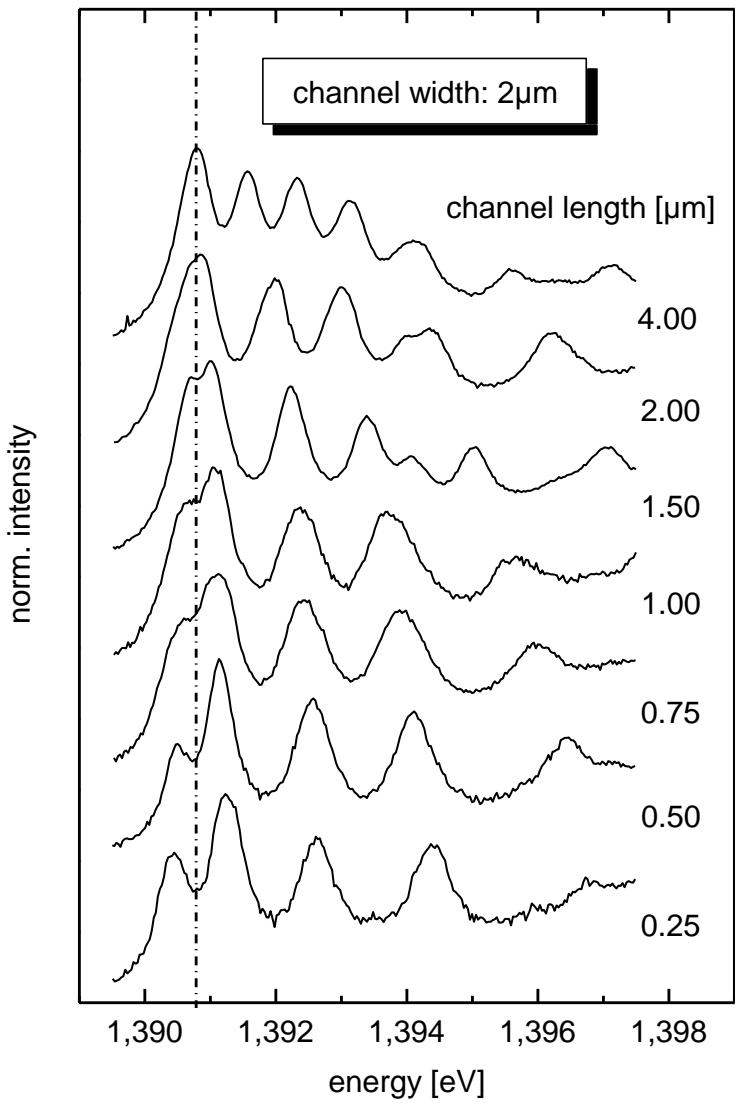
energy dispersion

$$E = \sqrt{E_0^2 + \hbar c^2 k^2 \sin^2 \vartheta}$$

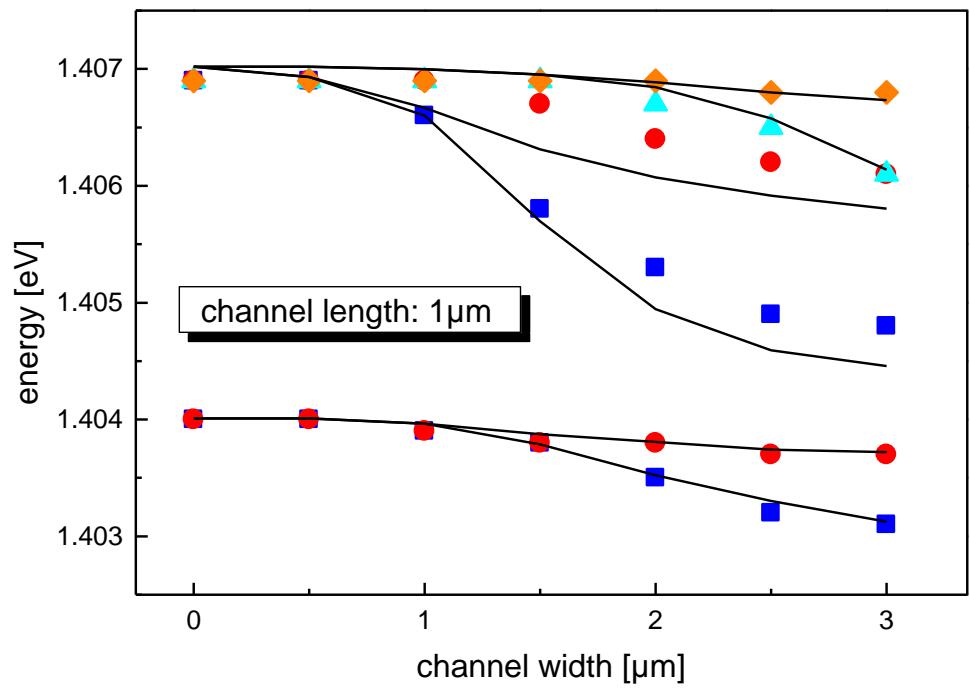




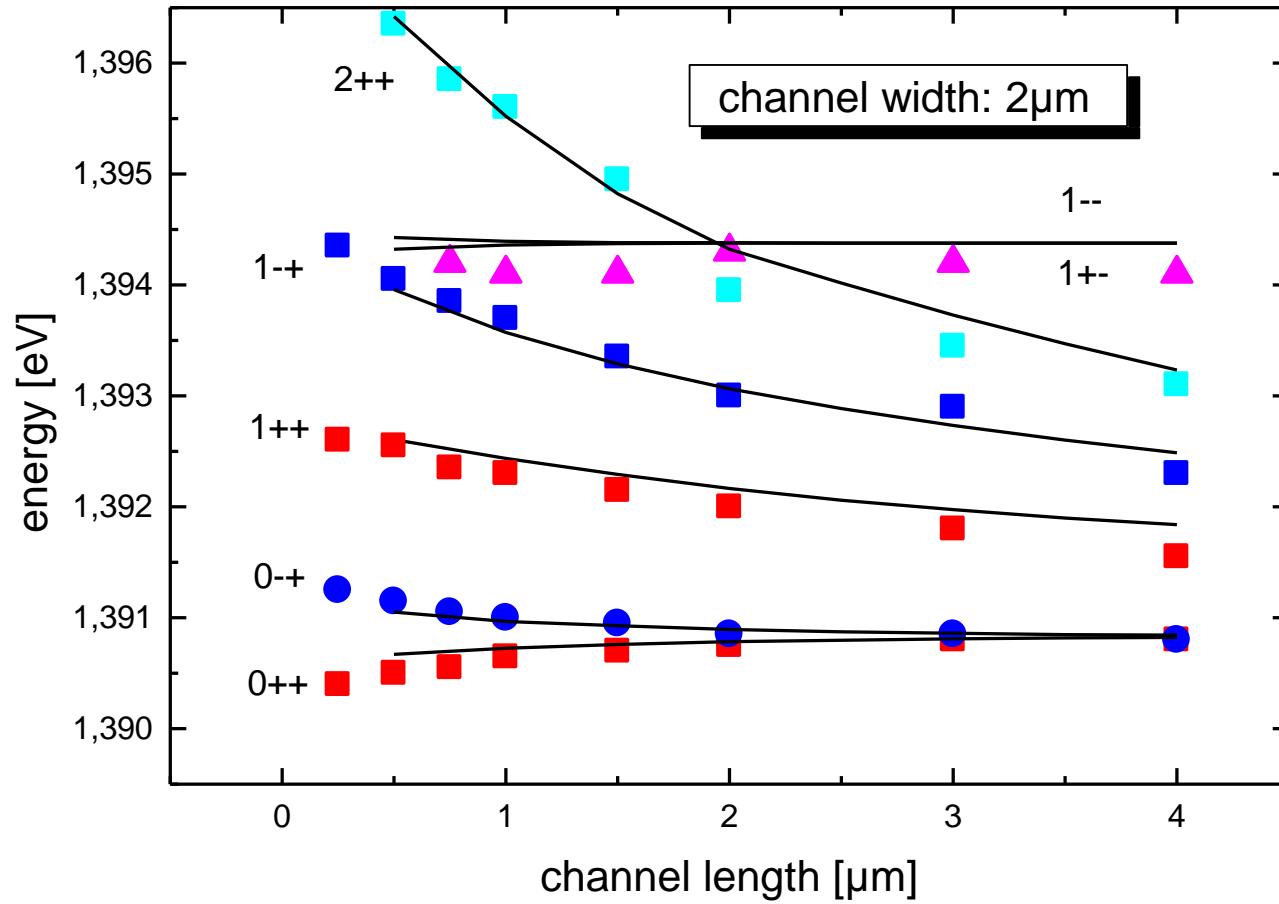
photonic molecule“



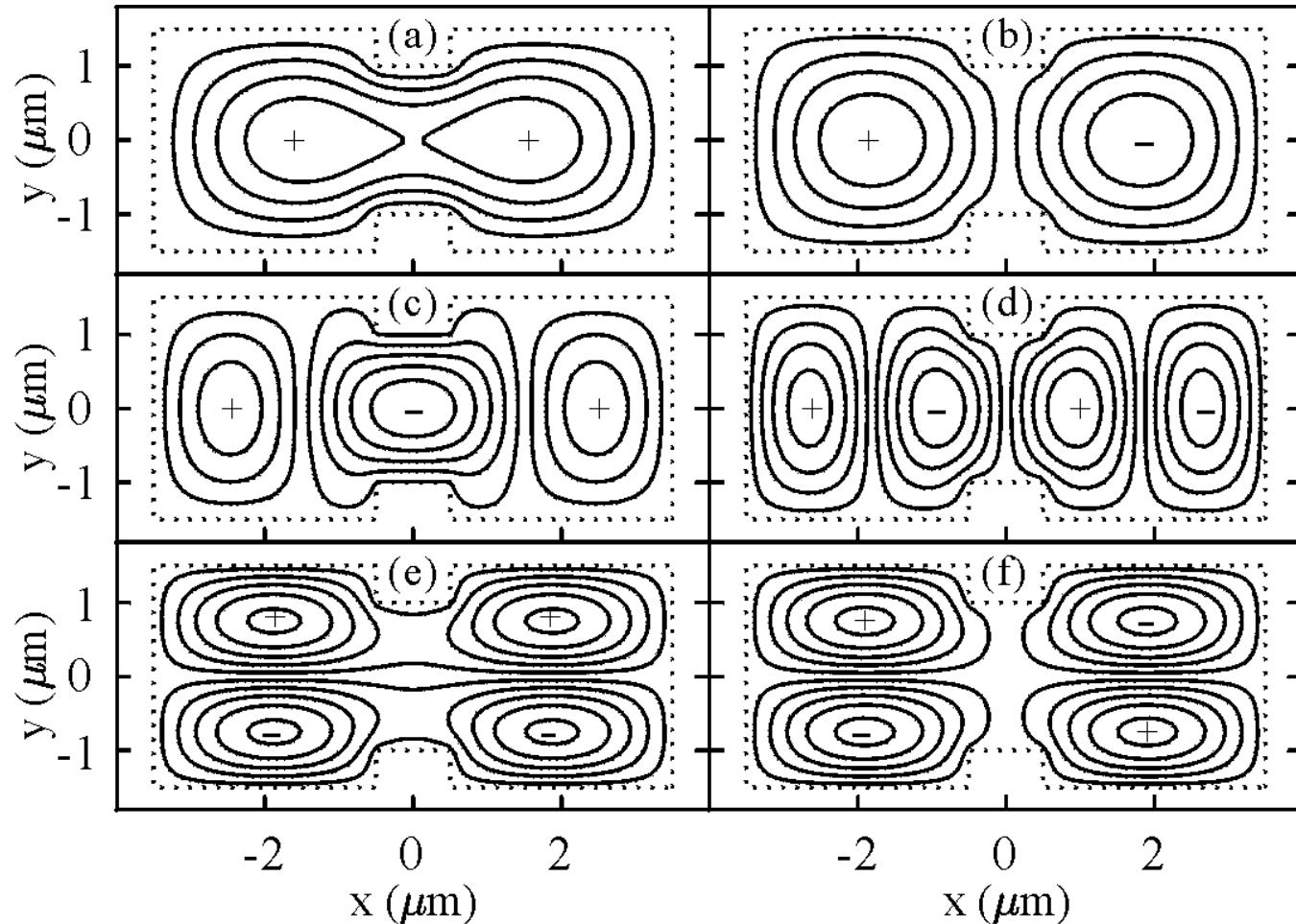
coupling induced mode splitting



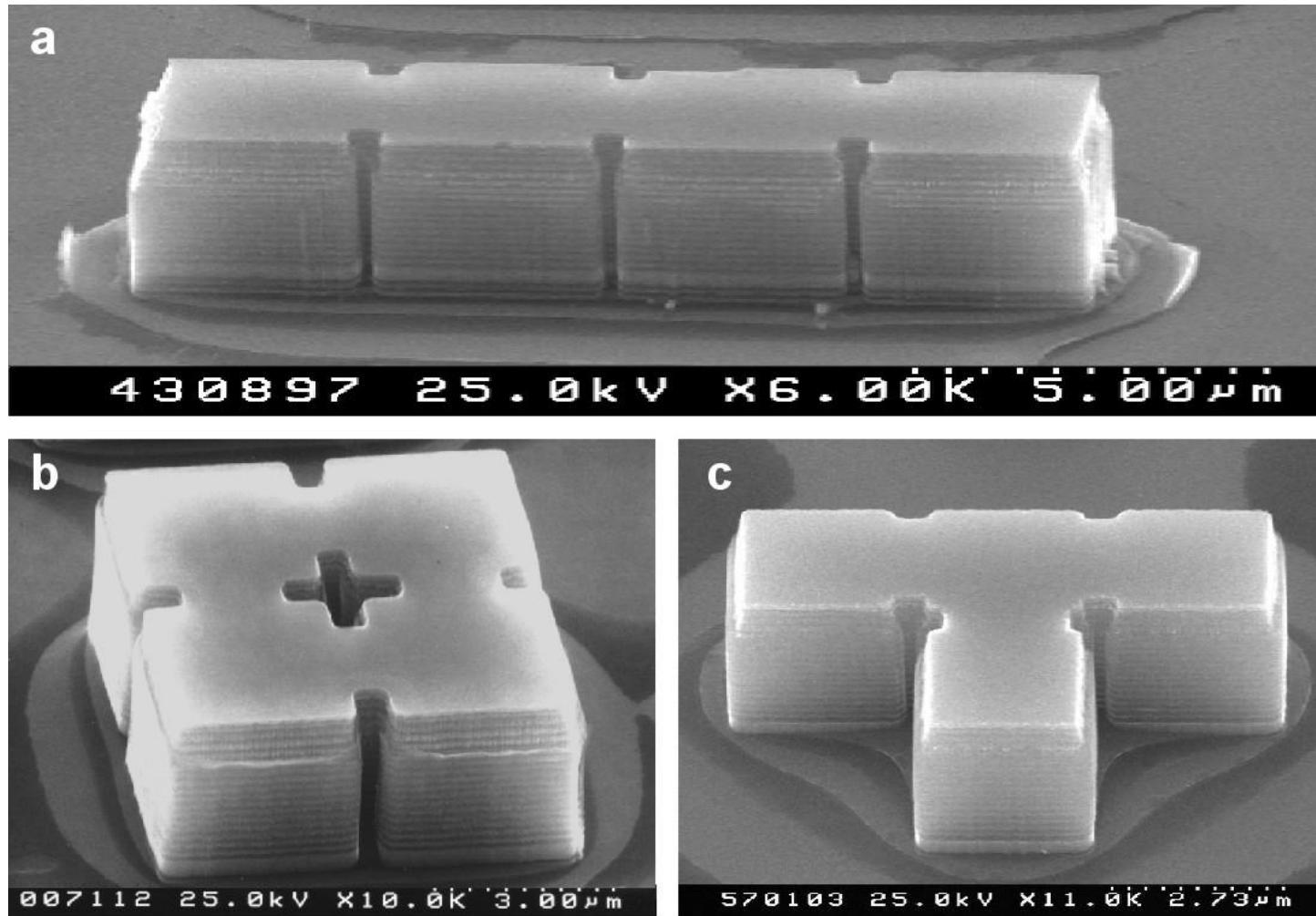
optical mode spectrum



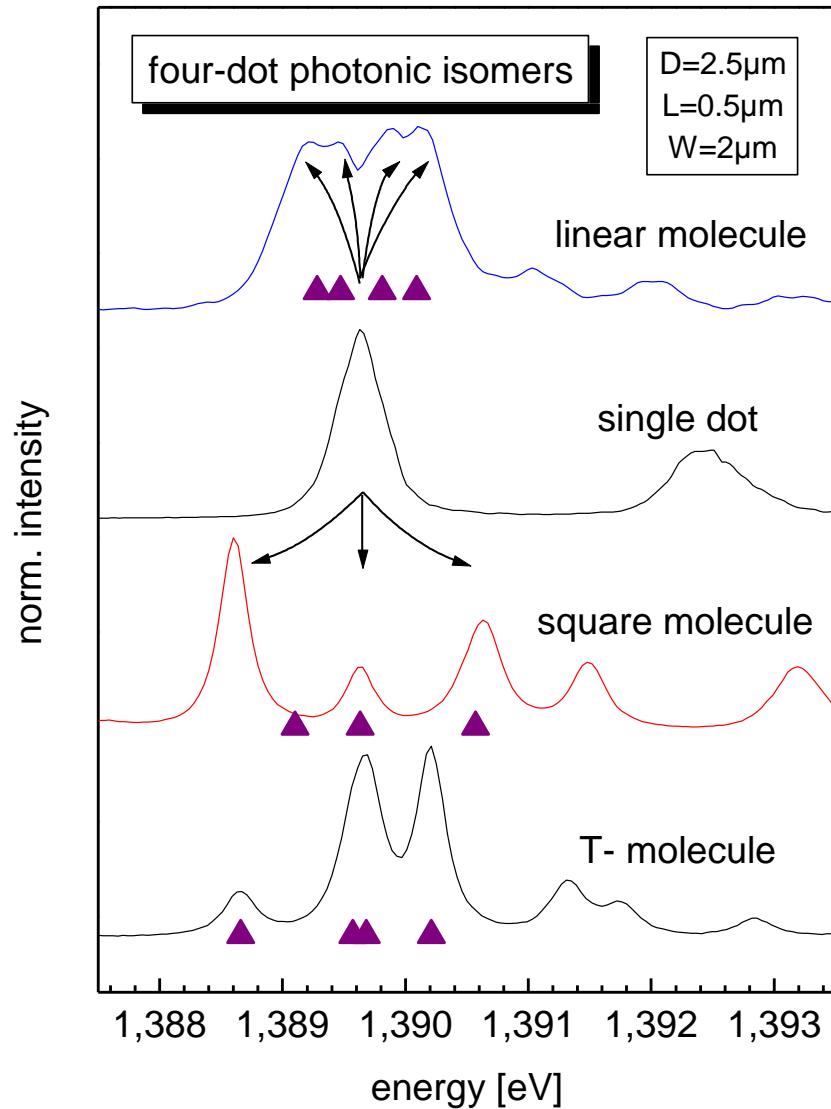
optical mode spectrum



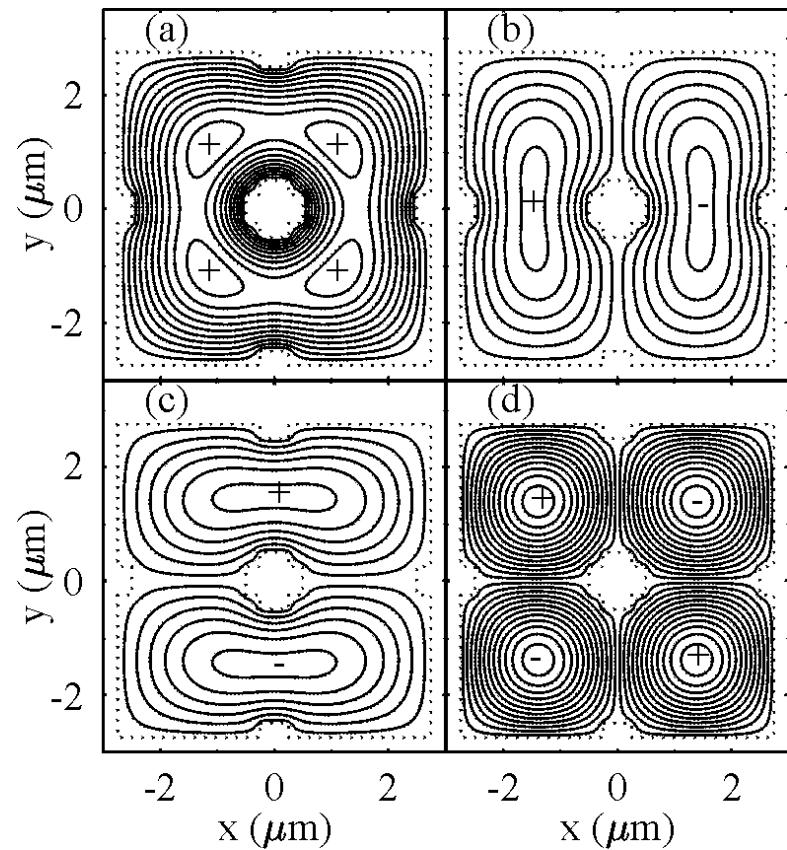
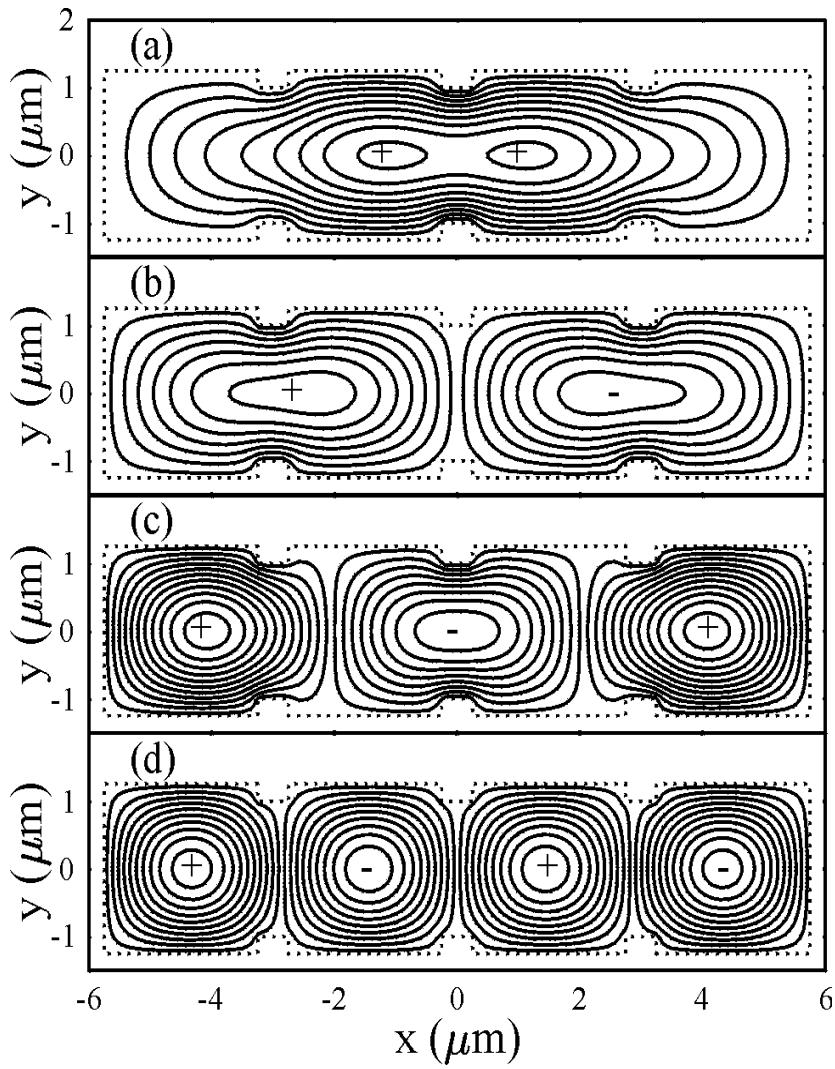
electric field distribution in dimer

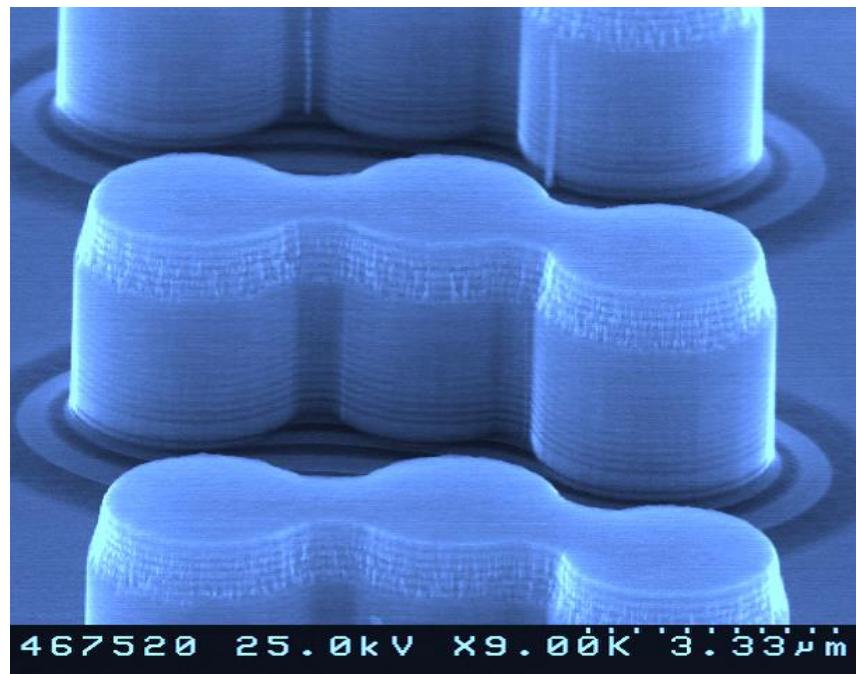
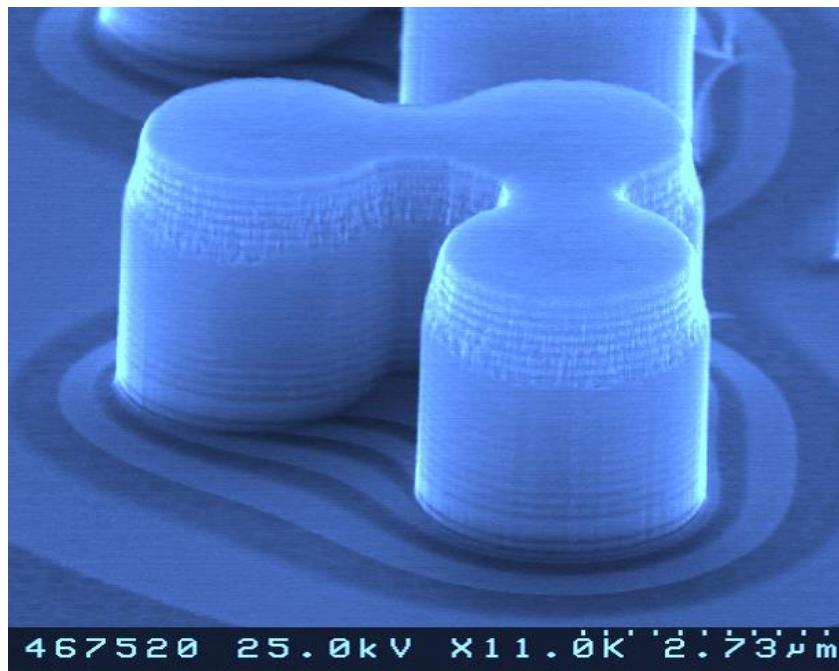


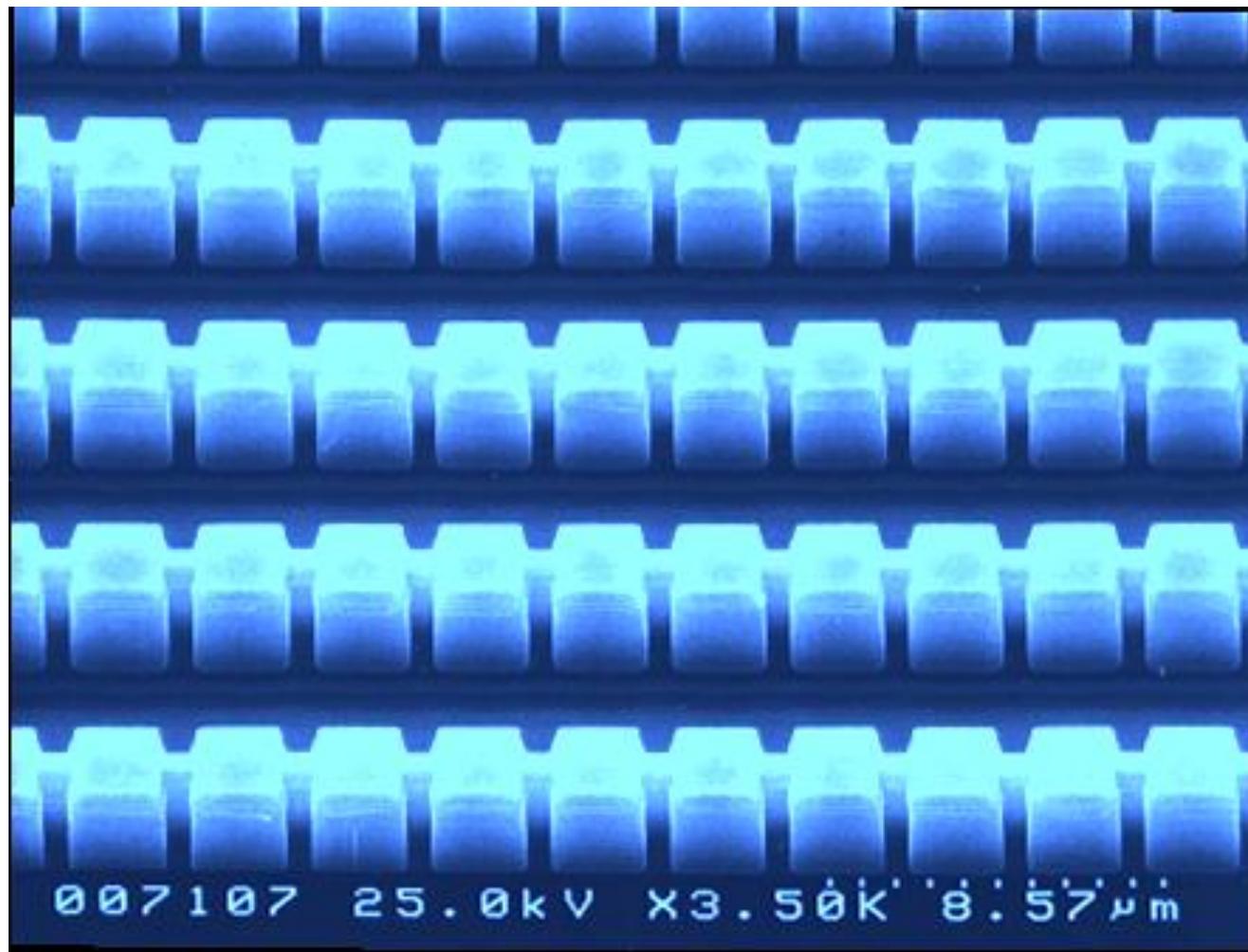
„isomeric photonic molecule“



optical mode spectrum

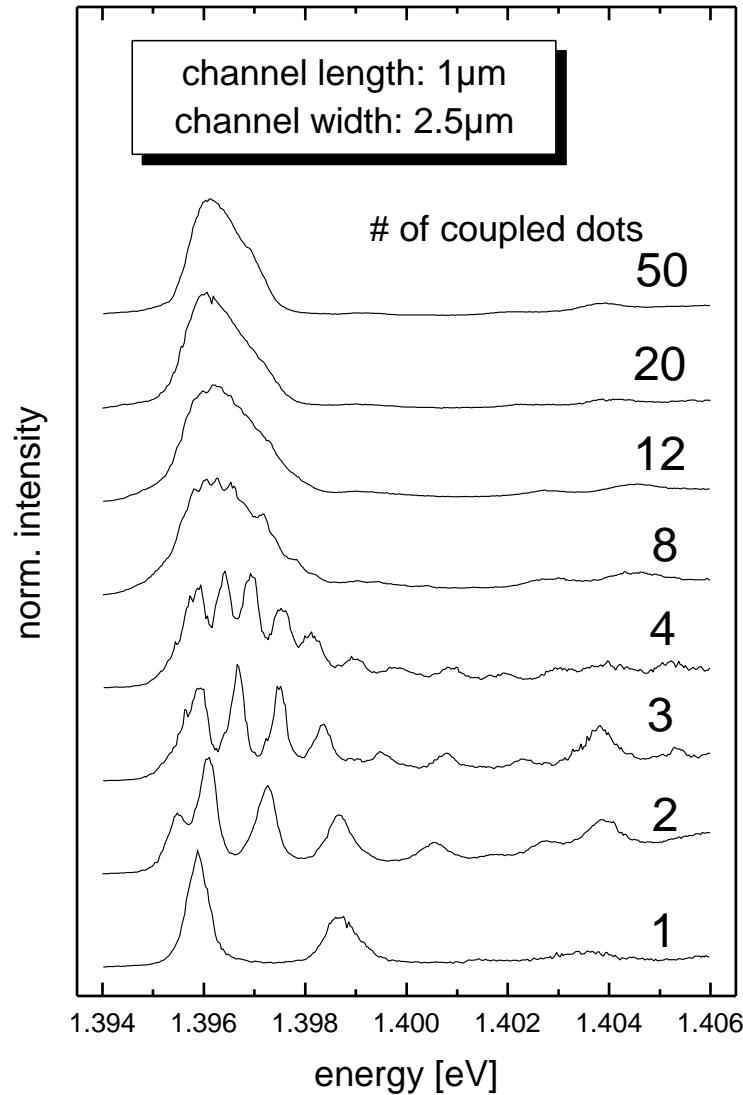
**electric field distributions**

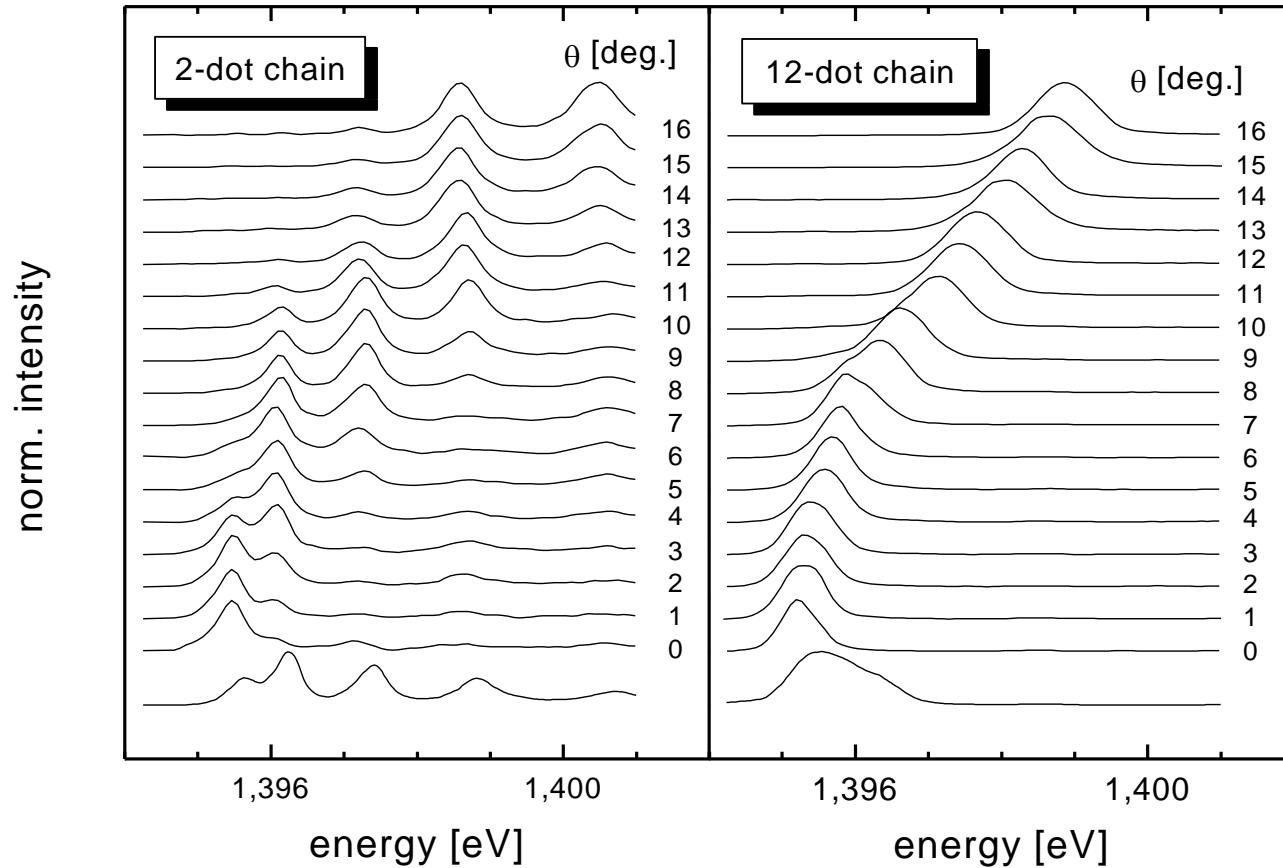
isomeric photonic molecules“



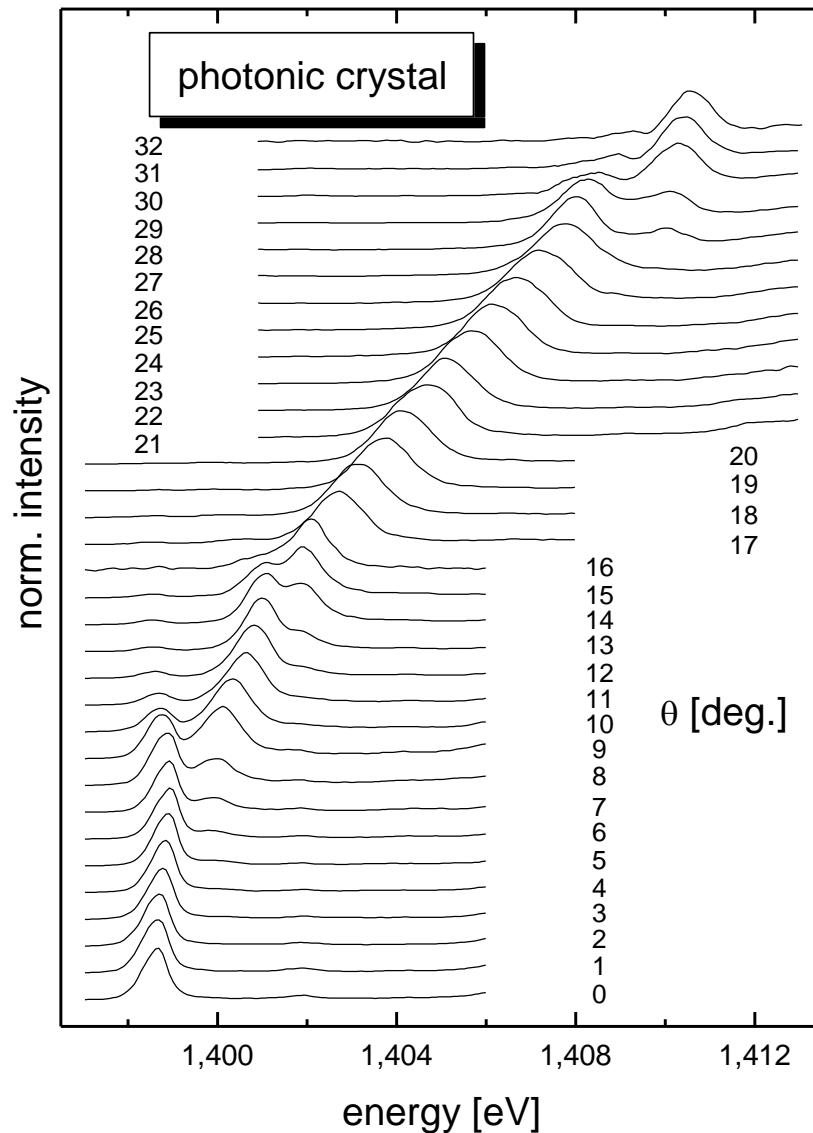
„photonic crystal“

TRANSITION:
photonic dot
photonic molecule
photonic crystal

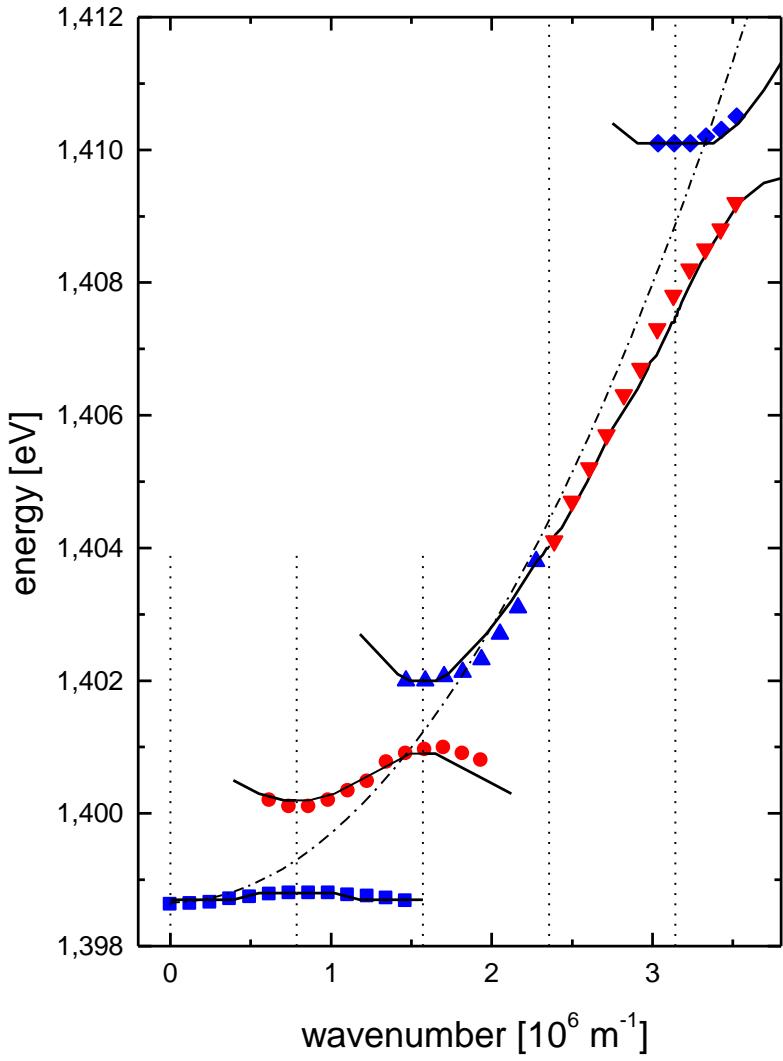




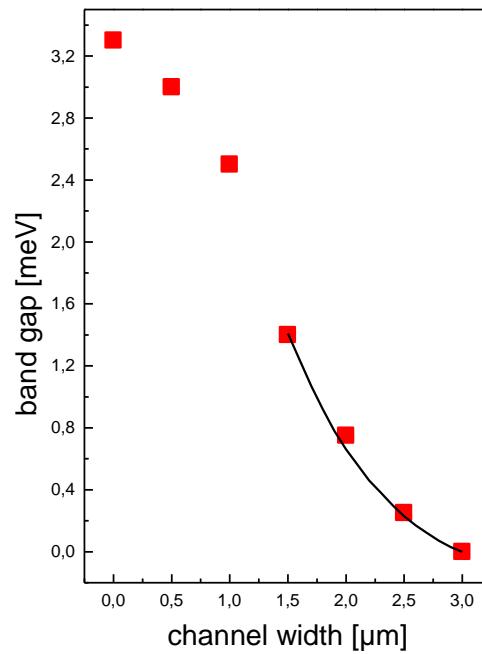
optical mode spectrum

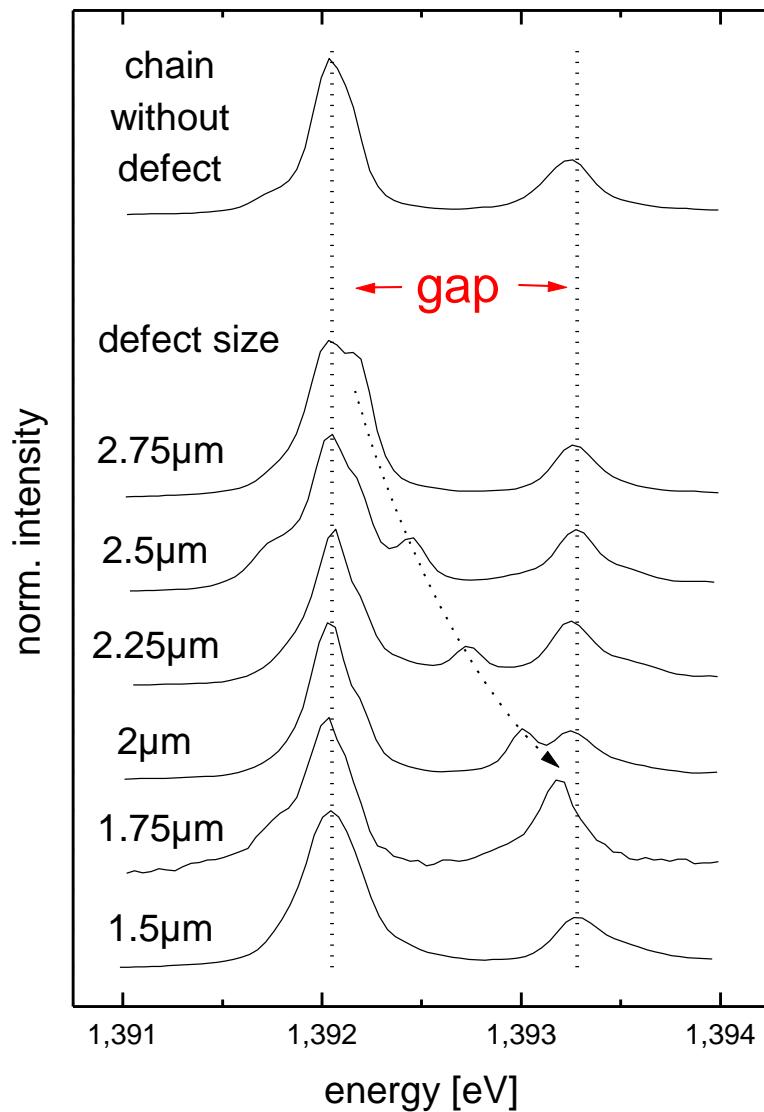


optical mode spectrum



optical mode spectrum





"photonic crystal with defect"

