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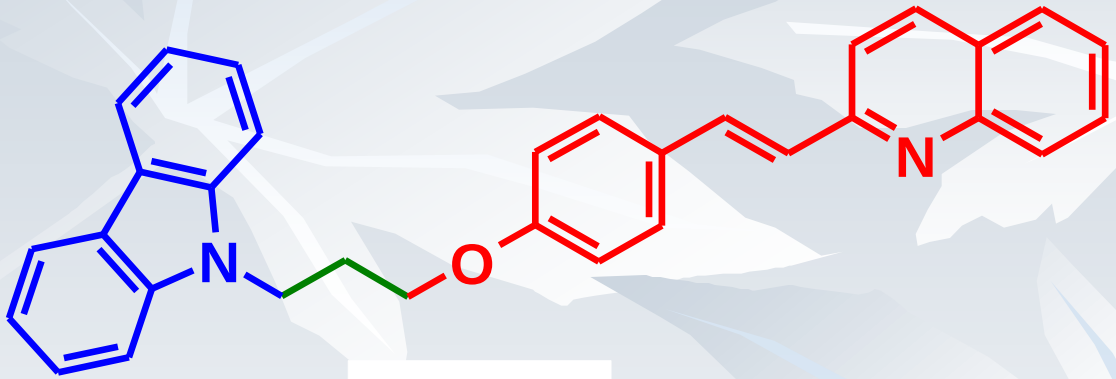
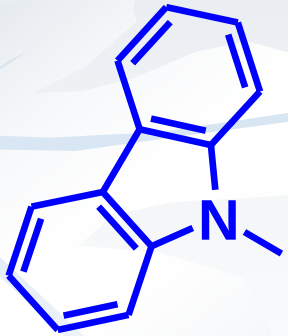
Singlet-singlet energy transfer and photoisomerization in a carbazole-styrylquinoline dyad

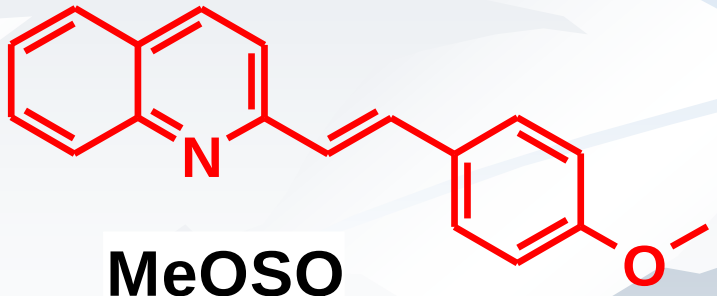
Structures of the CBz-SQ dyad and model compounds



SQ3CBz

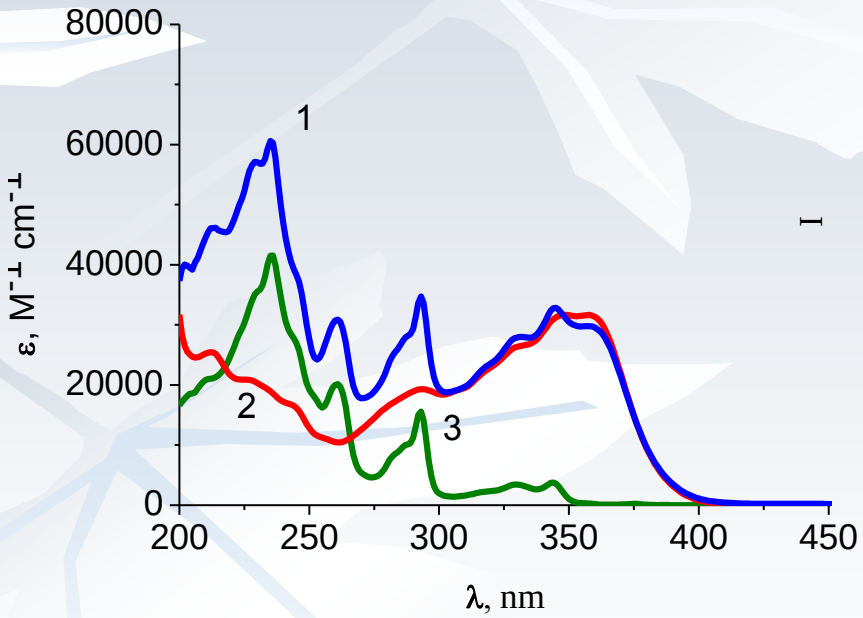


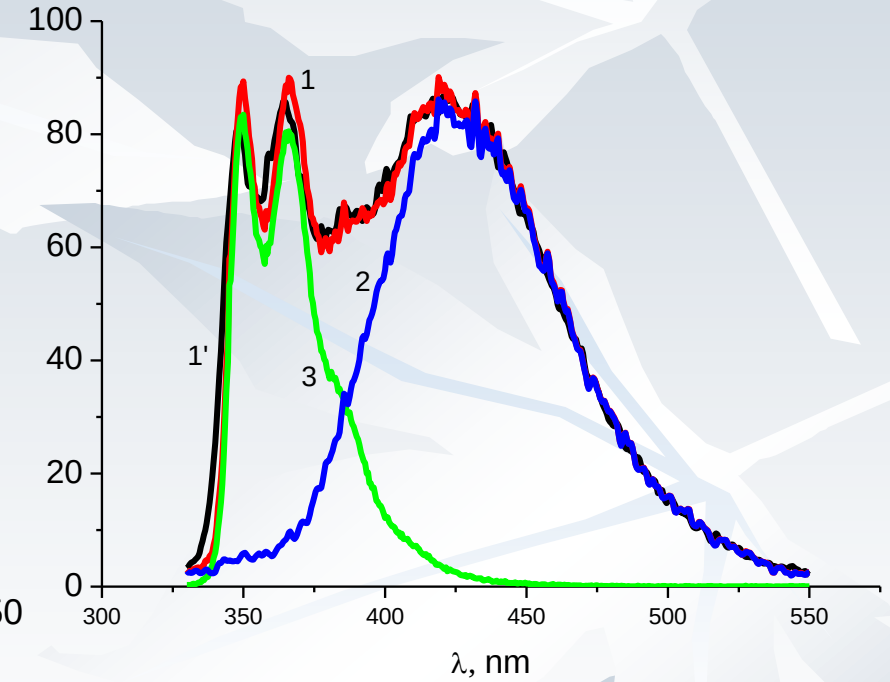
MeCBz

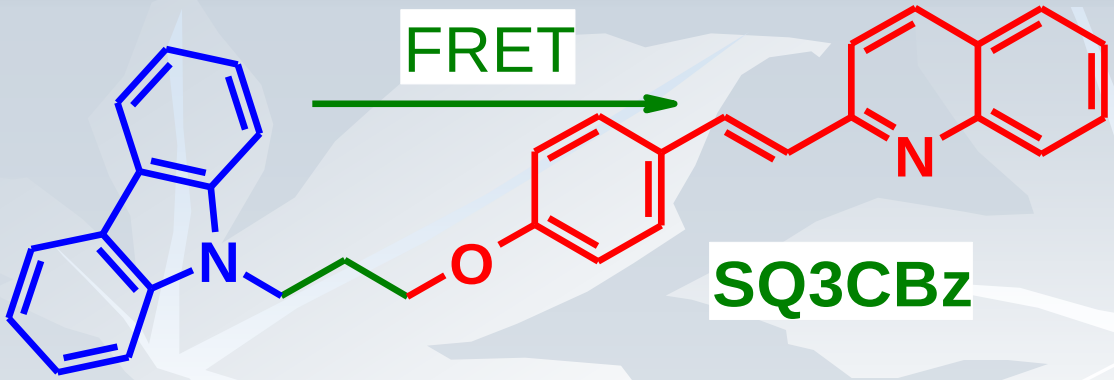


MeOSQ

Absorption and emission spectra of SQ3CBz (1, 1'), MeOSQ (2) and MeCBz (3) in EtOH



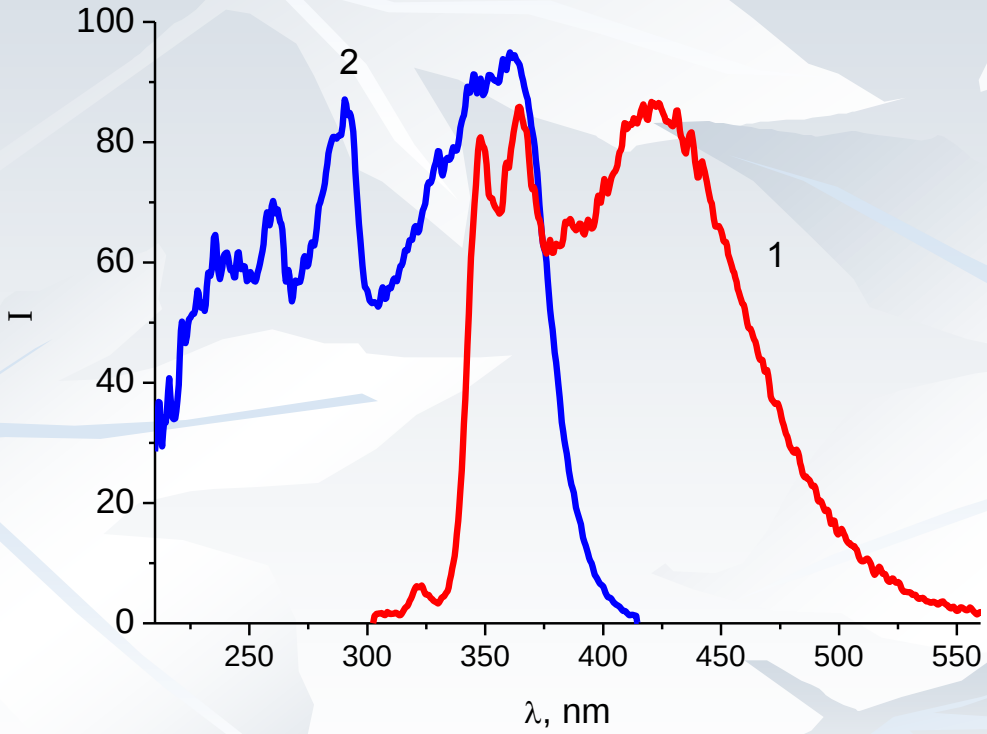




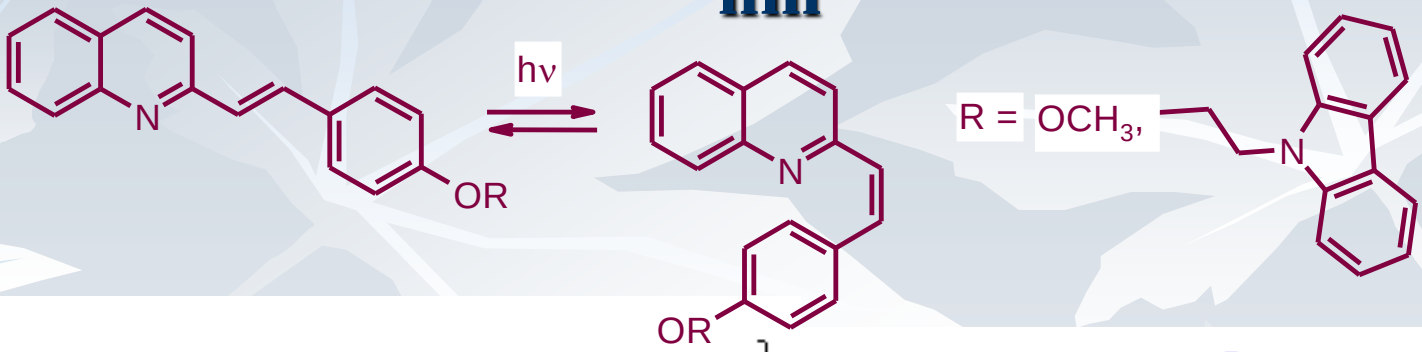
Quantum yields of MeCBz, MeOSQ and SQ3CBz (λ_{exc} = 293 nm)				
Compound	MeCBz	MeOSQ	SQ3CBz	
			CBz-fragment	SQ-fragment
φ_{fl}	0.43	0.018	0.022	0.037

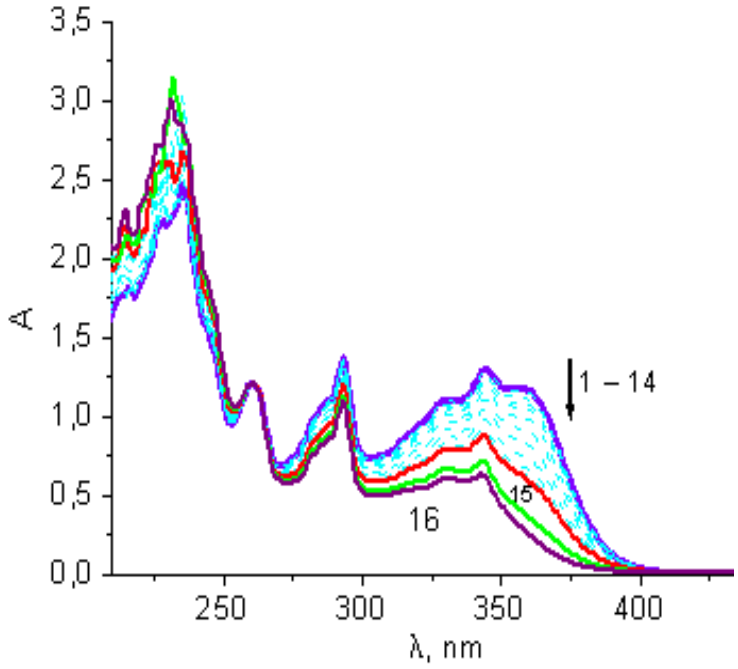
$$\varphi_{FRET} = 1 - \frac{\varphi_D'}{\varphi_D} = 1 - \frac{0.022}{0.43} = 0.95$$

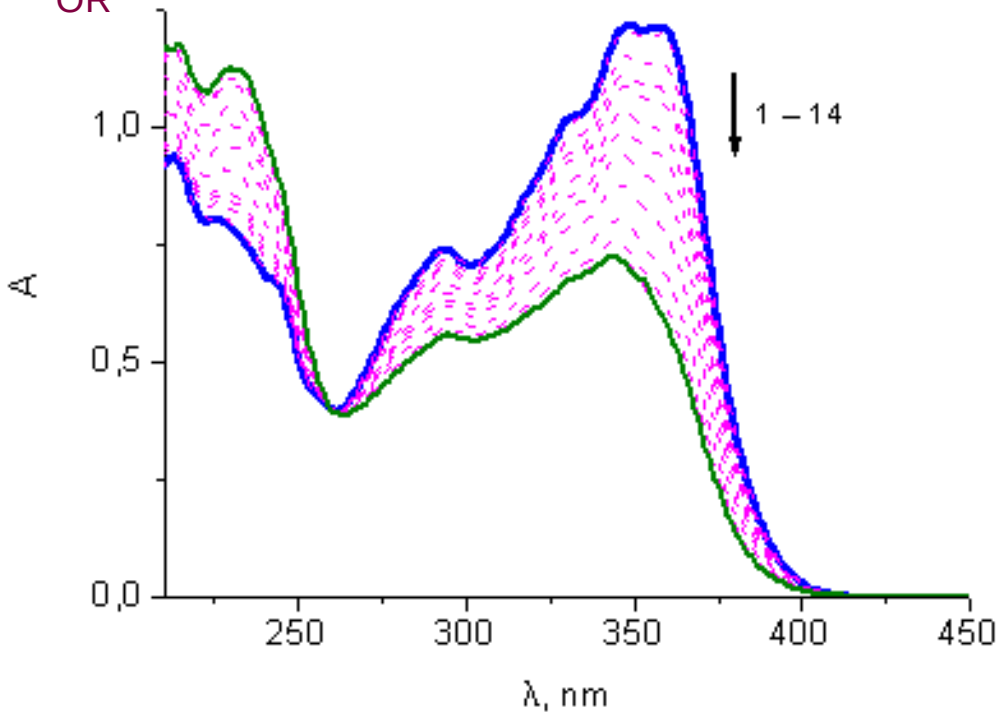
1 – Fluorescence spectrum of SQ3CBz (λ_{exc} = 293 nm), 2 – excitation spectrum of SQ3CBz (λ_{obs} = 424 nm)



Spectral changes upon irradiation of solutions of SQ3CBz (left) and MeOSQ (right) in EtOH with λ = 316 nm







φ_{EZ} = 0.46 – 0.48 and φ_{ZE} = 0.45 – 0.50

Thanks for attention!