

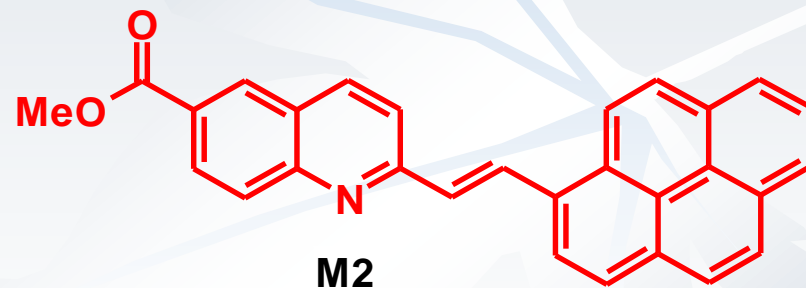
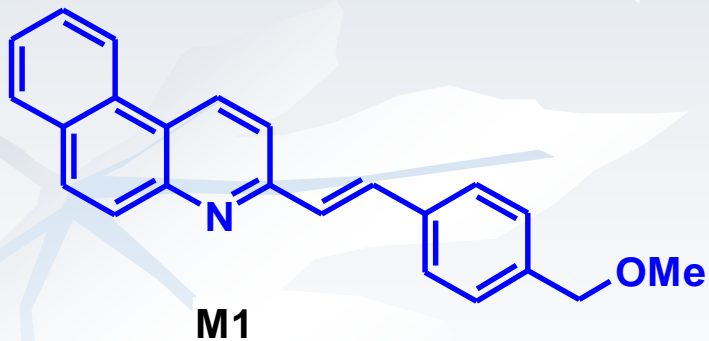
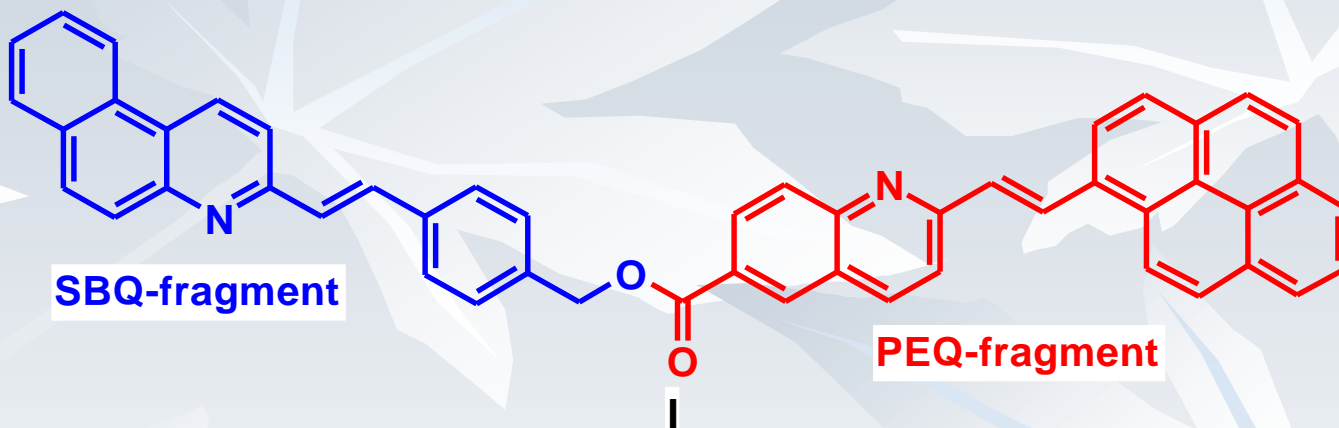
Li V. M.^{1*}, Budyka M. F.¹

1 – Institute of Problems of Chemical Physics, Russian Academy of Science, 1 prosp. Akad. Semenova, 142432 Chernogolovka, Moscow Region, Russian Federation.

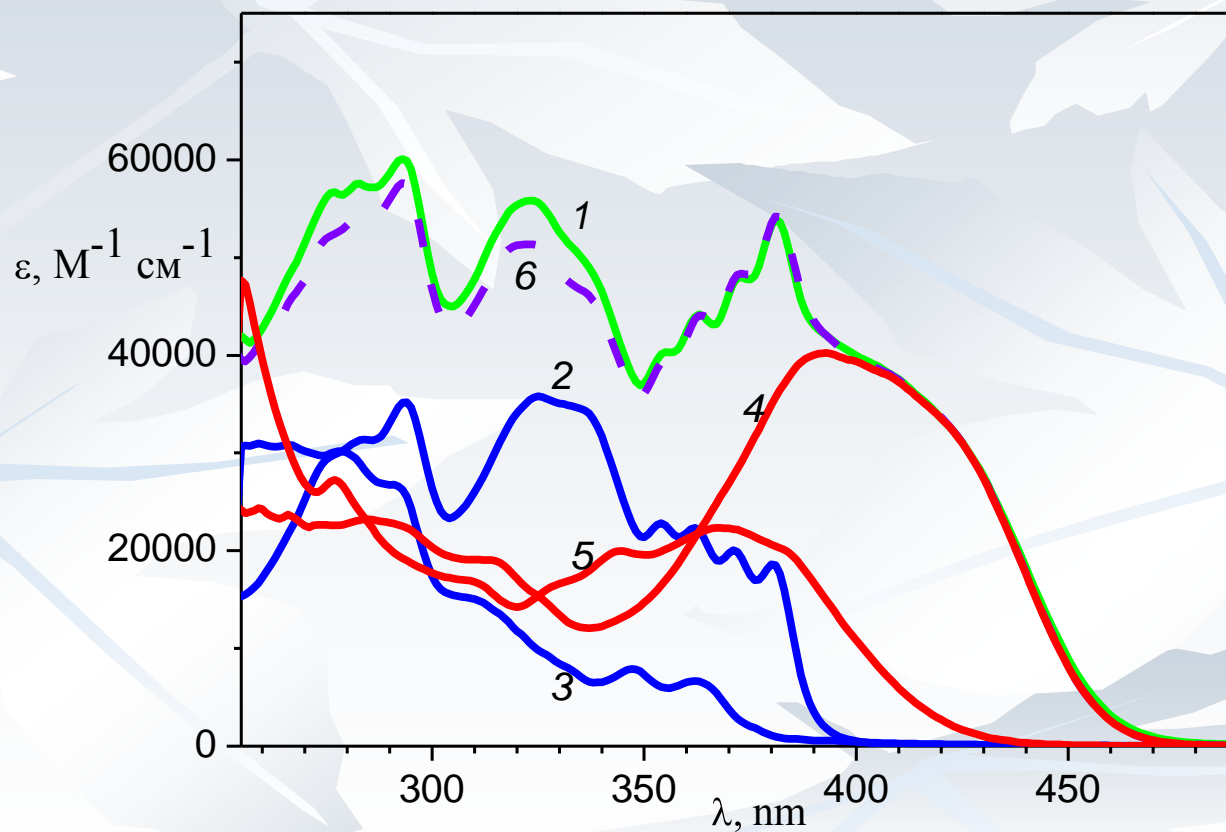
**e-mail: leevit@icp.ac.ru*

**Spectral and photochemical properties of a
biphotochromic dyad based on 3-styrylbenzo[*f*]-
quinoline and 2-[(2-(pyren-1-yl)ethenyl]quinoline**

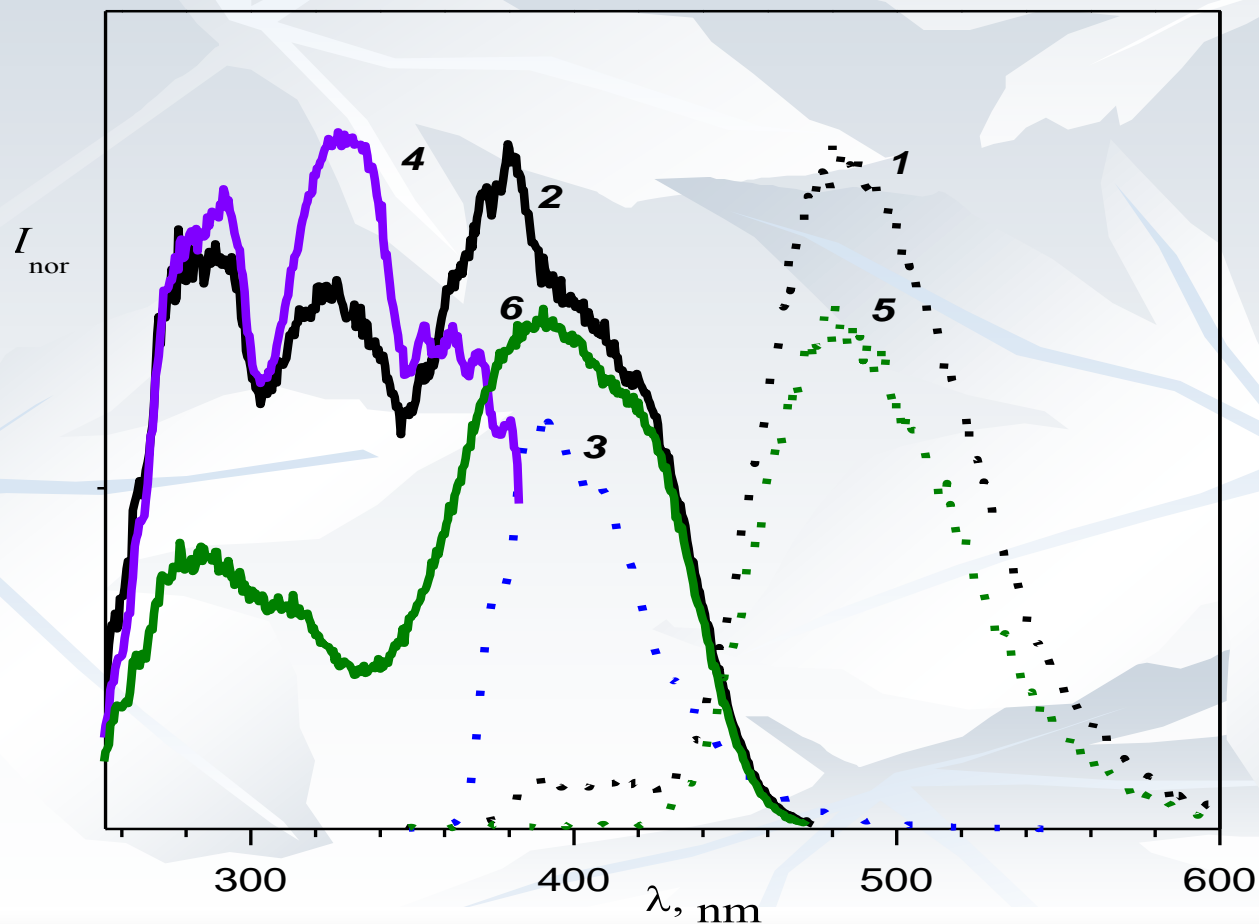
Structures of the dyad I and model compounds M1 and M2

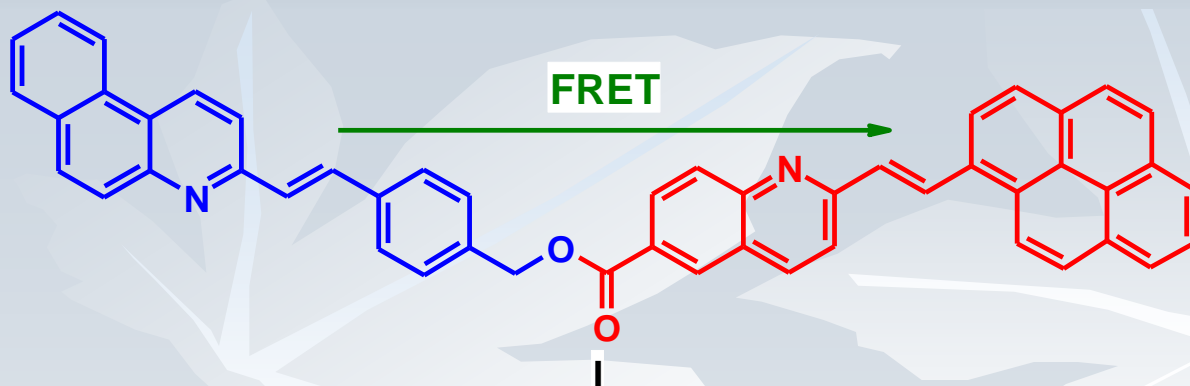


Absorption spectra in AcOEt: 1 – dyad I, 2 – *E*-M1 & 3 – *Z*-M1, 4 – *E*-M2 & 5 – *Z*-M2, 6 – model spectrum of *EE*-isomer of I (sum 2 + 4)



Normalized luminescence (1, 3, 5, $\lambda_{\text{ex}} = 339 \text{ nm}$) of the dyad I, M1, M2 and luminescence excitation spectra (2, $\lambda_{\text{obs}} = 483 \text{ nm}$) (4, $\lambda_{\text{obs}} = 392 \text{ nm}$), (6, $\lambda_{\text{obs}} = 482 \text{ nm}$). For convenience the spectra are shifted along the ordinate scale.





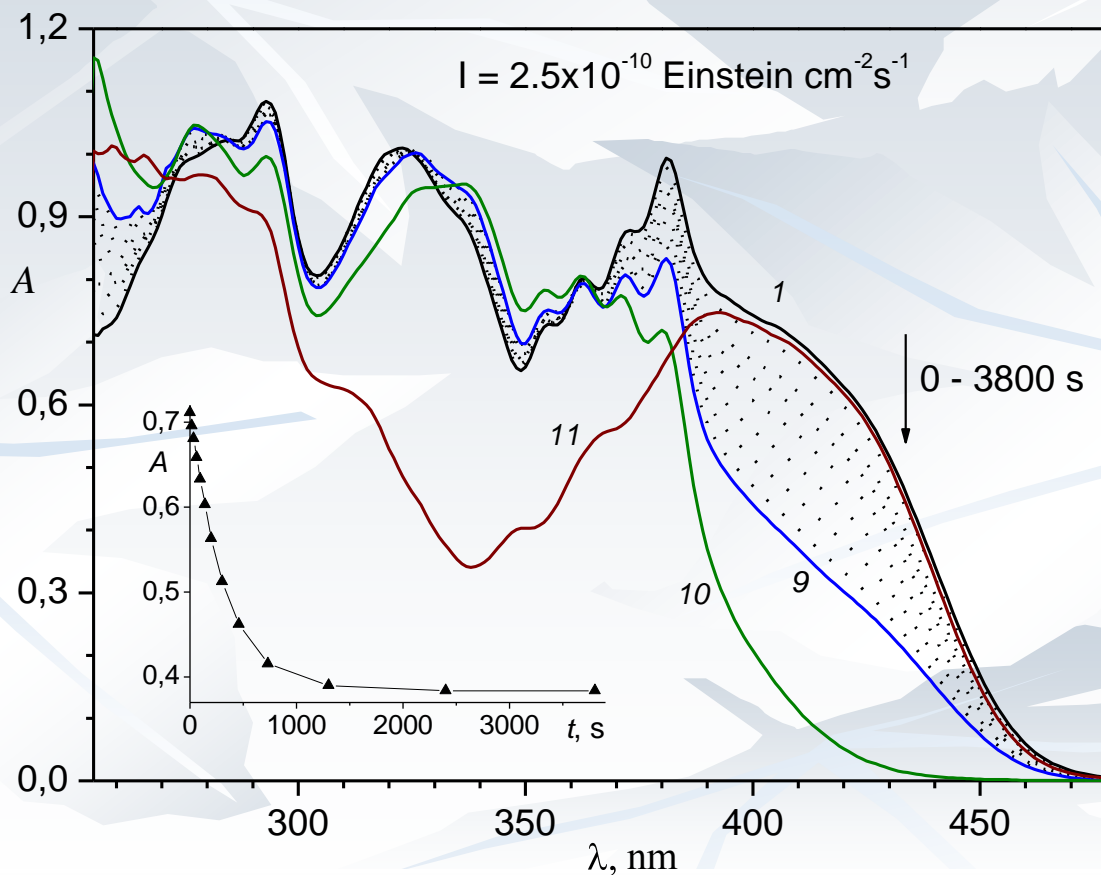
Quantum yields of Dyad I, M1 and M2 ($\lambda_{\text{ex}} = 339 \text{ nm}$)

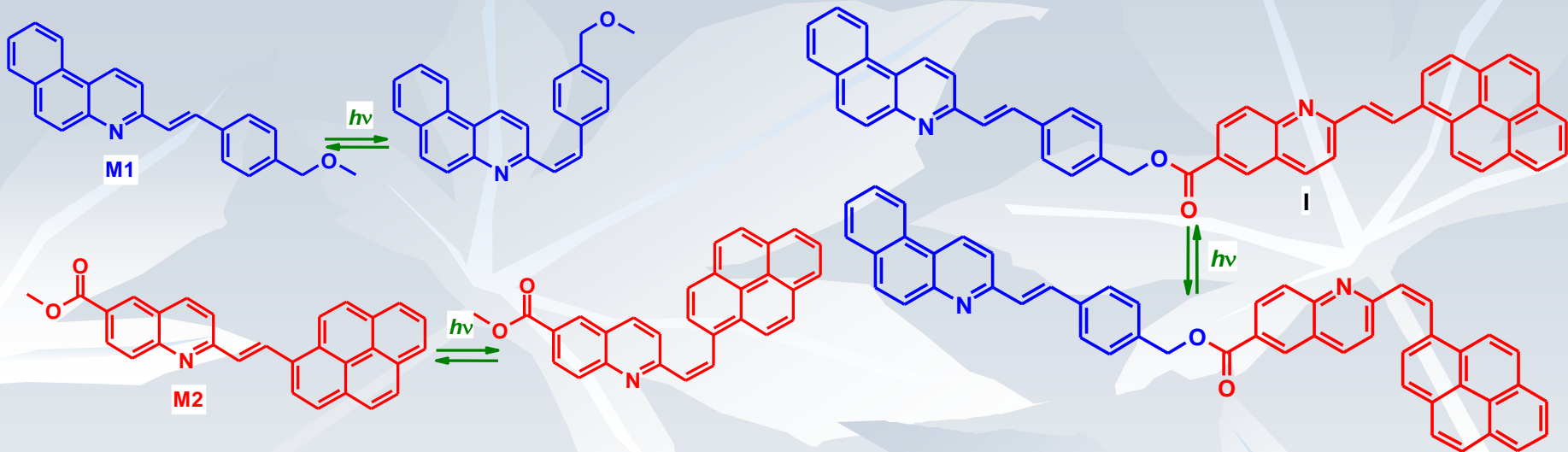
Compound	M1	M2	Dyad I	
			SBQ-fragment	PEQ-fragment
ϕ_{fl}	0.52	0.24	0.014	0.77

$$\phi_{FRET} = 1 - \frac{\phi_D'}{\phi_D} = 1 - \frac{0.014}{0.52} = 0.97$$

$$\mathbf{J(\text{SBQ-PEQ}) = 8.95 \times 10^{14} \text{ M}^{-1} \text{ cm}^{-1} \text{ nm}^4, \mathbf{R_0 = 4.43 \text{ nm.}}$$

Spectral changes upon irradiation of the dyad I solution in AcOEt ($C = 1.9 \times 10^{-5}$ M) with 408 nm light; model spectra of *EZ* and *ZE* isomers (10, 11) are obtained as a sum of model compounds spectra. Inset: absorbance kinetics at 408 nm, experimental data points and fitting curve.





Photoisomerization quantum yields of M1, M2 and I

Compound	M1	M2	Dyad I	
			SBQ-fragment	PEQ-fragment
Φ_{EZ}	0.18	0.15	-	0.14
Φ_{ZE}	0.48	0.55	-	0.48

The background of the slide features a repeating pattern of stylized, light blue leaves. The leaves are rendered in a flat, graphic style with visible veins, set against a light blue gradient background. The overall aesthetic is clean and modern.

Thanks for attention!