

1				2		
	Excitation Energy [nm]	Oscillator strength	Irrep	Excitation Energy [nm]	Oscillator strength	Irrep
S ₁	532.559	0.185E-02	A _u	510.388	0.696	B _u
S ₂	479.575	0.736	B _u	469.780	0.000	A _g
S ₃	452.154	0.000	A _g	416.422	0.615E-01	B _u
S ₄	399.035	0.000	B _g	413.379	0.000	A _g
S ₅	371.190	0.000	A _g	409.115	0.106E-02	A _u
S ₆	366.435	0.118E-01	B _u	385.534	0.000	A _g
S ₇	364.997	0.000	A _g	369.256	0.164E-01	B _u
S ₈	353.068	0.815E-02	B _u	344.824	0.634E-01	B _u
S ₉	341.051	0.305	B _u	327.714	0.000	A _g
S ₁₀	328.365	0.991E-03	A _u	326.969	0.194	B _u
S ₁₁	322.260	0.000	A _g	320.024	0.614E-06	B _g
S ₁₂	321.362	0.132E-01	B _u	318.466	0.172	B _u
S ₁₃	315.659	0.000	B _g	316.860	0.000	A _g
S ₁₄	314.464	0.862E-04	A _u	308.493	0.000	A _g
S ₁₅	296.829	0.000	A _g	305.839	0.104	B _u
S ₁₆	277.832	0.000	B _g	300.167	0.000	A _g
S ₁₇	265.186	0.000	B _g	285.183	0.000	A _g
S ₁₈	247.437	0.258E-04	A _u	282.169	0.284E-02	B _u
S ₁₉	238.444	0.229E-03	A _u	281.401	0.589E-03	A _u
S ₂₀	238.215	0.000	B _g	275.232	0.390E-02	B _u
3				4		
	Excitation Energy [nm]	Oscillator strength	Irrep	Excitation Energy [nm]	Oscillator strength	Irrep
S ₁	559.886	0.128E-02	A _u	506.354	0.409	B
S ₂	494.547	0.622	A _u	480.510	0.969E-03	A
S ₃	464.798	0.000	A _g	402.702	0.732E-02	A
S ₄	429.659	0.000	A _g	401.332	0.632E-01	B
S ₅	383.044	0.000	A _g	391.740	0.105E-01	A
S ₆	380.725	0.494E-01	A _u	382.478	0.145	B
S ₇	375.418	0.000	A _g	378.533	0.107E-04	A
S ₈	357.954	0.123	A _u	352.449	0.169E-01	B
S ₉	348.196	0.519E-01	A _u	336.746	0.166E-01	B
S ₁₀	326.768	0.169E-02	A _u	333.516	0.381E-02	A
S ₁₁	323.949	0.000	A _g	328.080	0.232E-03	A
S ₁₂	321.064	0.259E-01	A _u	326.397	0.653E-01	B
S ₁₃	318.779	0.000	A _g	315.275	0.167	B
S ₁₄	316.361	0.399E-03	A _u	310.460	0.227E-01	B
S ₁₅	313.348	0.181	A _u	310.367	0.171E-01	A
S ₁₆	303.842	0.000	A _g	307.528	0.911E-03	A
S ₁₇	299.937	0.779E-01	A _u	291.843	0.302E-04	A
S ₁₈	298.727	0.000	A _g	289.095	0.147	B
S ₁₉	291.129	0.000	A _g	286.748	0.244E-02	A
S ₂₀	287.361	0.000	A _g	286.506	0.817E-01	B

Table S1: Excitation energies given as excitation wavelengths in nm, oscillator strengths and irreducible representations (Irrep) for the first 20 excited states of the four bisazomethine pigments **1** to **4**. **1** and **2** exhibit C_{2h} molecular symmetry while **3** has C_i and **4** C₂ symmetry.