

## Supplementary data

**Table S1.** Cross sections ( $10^{-20} \text{ m}^2$ ) for  $\text{Xe}^{7+}$  for the transitions from  $4d^{10}5s \text{ }^2\text{S}_{1/2}$  state at incident electron energies 200, 300, 400, 500, 700, 1000, 1200, 1500, 2000, 2500, 3000 eV.

Index	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
10	3/2	1.370E-1	1.234E-1	1.113E-1	1.014E-1	8.654E-2	7.149E-2	6.438E-2	5.640E-2	4.731E-2	4.097E-2	3.625E-2
9	1/2	6.568E-2	5.913E-2	5.334E-2	4.860E-2	4.147E-2	3.426E-2	3.085E-2	2.703E-2	2.267E-2	1.964E-2	1.738E-2
8	1/2	3.144E-3	2.710E-3	2.421E-3	2.195E-3	1.859E-3	1.531E-3	1.375E-3	1.197E-3	9.973E-4	8.612E-4	7.611E-4
7	3/2	1.106E-2	9.551E-3	8.534E-3	7.731E-3	6.541E-3	5.382E-3	4.828E-3	4.200E-3	3.497E-3	3.033E-3	2.698E-3
6	1/2	8.446E-4	7.167E-4	6.361E-4	5.736E-4	4.837E-4	3.969E-4	3.557E-4	3.092E-4	2.575E-4	2.223E-4	1.964E-4
5	1/2	1.058E-2	9.043E-3	8.017E-3	7.224E-3	6.073E-3	4.967E-3	4.445E-3	3.857E-3	3.203E-3	2.760E-3	2.436E-3
4	3/2	3.749E-3	3.152E-3	2.775E-3	2.491E-3	2.085E-3	1.700E-3	1.519E-3	1.317E-3	1.092E-3	9.390E-4	8.266E-4
3	3/2	3.416E-4	2.435E-4	2.031E-4	1.774E-4	1.450E-4	1.166E-4	1.039E-4	8.982E-5	7.444E-5	6.412E-5	5.661E-5
2	3/2	9.394E-4	7.521E-4	6.526E-4	5.808E-4	4.832E-4	3.929E-4	3.510E-4	3.043E-4	2.529E-4	2.163E-4	1.888E-4

**Table S2.** Cross sections ( $10^{-20} \text{ m}^2$ ) for  $\text{Xe}^{8+}$  for the transitions from  $4d^{10} \text{ }^1\text{S}_0$  state at incident electron energies 200, 300, 400, 500, 700, 1000, 1200, 1500, 2000, 2500, 3000 eV.

Index	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
43	1	1.761E-2	1.499E-2	1.283E-2	1.120E-2	8.990E-3	7.020E-3	6.162E-3	5.243E-3	4.239E-3	3.584E-3	3.120E-3
41	1	4.624E-3	3.906E-3	3.333E-3	2.906E-3	2.332E-3	1.820E-3	1.598E-3	1.360E-3	1.099E-3	9.295E-4	8.095E-4
38	1	1.158E-4	6.587E-5	4.493E-5	3.276E-5	2.047E-5	1.335E-5	1.103E-5	8.848E-6	6.770E-6	5.557E-6	4.759E-6
35	1	1.138E-4	8.358E-5	6.995E-5	6.134E-5	5.055E-5	4.099E-5	3.664E-5	3.184E-5	2.639E-5	2.270E-5	2.001E-5
33	1	9.245E-4	8.872E-4	8.321E-4	7.782E-4	6.887E-4	5.850E-4	5.311E-4	4.687E-4	3.942E-4	3.419E-4	3.029E-4
31	1	8.566E-4	8.177E-4	7.651E-4	7.138E-4	6.294E-4	5.343E-4	4.849E-4	4.276E-4	3.597E-4	3.120E-4	2.765E-4
29	1	7.221E-2	6.252E-2	5.456E-2	4.851E-2	3.999E-2	3.207E-2	2.851E-2	2.457E-2	2.015E-2	1.723E-2	1.514E-2
26	1	3.220E-3	2.725E-3	2.358E-3	2.087E-3	1.715E-3	1.374E-3	1.221E-3	1.052E-3	8.628E-4	7.379E-4	6.487E-4
24	1	4.058E-4	2.586E-4	1.867E-4	1.454E-4	1.040E-4	7.709E-5	6.686E-5	5.651E-5	4.577E-5	3.896E-5	3.418E-5
21	1	2.174E-4	1.795E-4	1.609E-4	1.475E-4	1.274E-4	1.062E-4	9.597E-5	8.438E-5	7.061E-5	6.105E-5	5.403E-5
19	1	4.346E-3	4.003E-3	3.668E-3	3.389E-3	2.950E-3	2.467E-3	2.230E-3	1.960E-3	1.639E-3	1.417E-3	1.253E-3
17	1	2.822E-3	2.588E-3	2.370E-3	2.191E-3	1.908E-3	1.594E-3	1.441E-3	1.267E-3	1.059E-3	9.151E-4	8.094E-4
15	1	2.476E-1	2.175E-1	1.941E-1	1.757E-1	1.489E-1	1.226E-1	1.103E-1	9.630E-2	8.020E-2	6.931E-2	6.140E-2
13	1	1.284E-3	8.720E-4	6.823E-4	5.757E-4	4.550E-4	3.592E-4	3.187E-4	2.746E-4	2.254E-4	1.931E-4	1.700E-4
10	1	2.143E-3	1.017E-3	5.680E-4	3.589E-4	1.850E-4	1.012E-4	7.808E-5	5.929E-5	4.394E-5	3.588E-5	3.093E-5
7	1	7.411E-3	6.384E-3	5.709E-3	5.179E-3	4.390E-3	3.625E-3	3.261E-3	2.841E-3	2.359E-3	2.037E-3	1.804E-3
5	1	3.452E-2	2.959E-2	2.635E-2	2.384E-2	2.013E-2	1.656E-2	1.487E-2	1.294E-2	1.072E-2	9.243E-3	8.179E-3
3	1	2.096E-4	8.829E-5	4.899E-5	2.959E-5	1.288E-5	5.189E-6	3.562E-6	2.553E-6	1.809E-6	1.426E-6	1.201E-6

**Table S3.** Cross sections ( $10^{-20} \text{ m}^2$ ) for  $\text{Xe}^{9+}$  at incident electron energies 200, 300, 400, 500, 700, 1000, 1200, 1500, 2000, 2500, 3000 eV.  $a$  and  $b$  refer to the indices of the initial and final levels, respectively.

$a$	$J_a$	$b$	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
2	3/2	57	1/2	4.665E-2	3.913E-2	3.408E-2	3.039E-2	2.531E-2	2.056E-2	1.839E-2	1.598E-2	1.324E-2	1.140E-2	1.006E-2
1	5/2	56	5/2	1.594E-3	1.328E-3	1.156E-3	1.031E-3	8.602E-4	6.997E-4	6.261E-4	5.445E-4	4.516E-4	3.887E-4	3.430E-4
1	5/2	55	3/2	1.254E-2	1.048E-2	9.122E-3	8.128E-3	6.765E-3	5.488E-3	4.905E-3	4.260E-3	3.527E-3	3.033E-3	2.674E-3
2	3/2	56	5/2	1.562E-1	1.313E-1	1.147E-1	1.024E-1	8.541E-2	6.942E-2	6.209E-2	5.397E-2	4.473E-2	3.849E-2	3.394E-2
1	5/2	54	7/2	1.414E-1	1.189E-1	1.038E-1	9.272E-2	7.738E-2	6.291E-2	5.628E-2	4.892E-2	4.055E-2	3.489E-2	3.077E-2
1	5/2	53	5/2	9.937E-2	8.334E-2	7.264E-2	6.480E-2	5.400E-2	4.385E-2	3.921E-2	3.406E-2	2.822E-2	2.427E-2	2.139E-2
2	3/2	55	3/2	8.251E-2	6.920E-2	6.032E-2	5.381E-2	4.485E-2	3.641E-2	3.256E-2	2.829E-2	2.343E-2	2.015E-2	1.776E-2
1	5/2	51	3/2	5.690E-4	4.282E-4	3.481E-4	2.961E-4	2.296E-4	1.725E-4	1.489E-4	1.243E-4	9.788E-5	8.118E-5	6.962E-5
1	5/2	50	3/2	2.405E-4	1.835E-4	1.527E-4	1.325E-4	1.061E-4	8.300E-5	7.305E-5	6.228E-5	5.042E-5	4.269E-5	3.721E-5
2	3/2	52	1/2	1.694E-3	1.435E-3	1.258E-3	1.134E-3	9.531E-4	7.779E-4	6.989E-4	6.101E-4	5.060E-4	4.351E-4	3.836E-4
2	3/2	50	3/2	6.190E-4	4.575E-4	3.761E-4	3.245E-4	2.594E-4	2.039E-4	1.800E-4	1.540E-4	1.253E-4	1.064E-4	9.295E-5
1	5/2	46	5/2	2.782E-4	1.521E-4	1.021E-4	7.767E-5	5.477E-5	4.034E-5	3.503E-5	2.967E-5	2.407E-5	2.046E-5	1.790E-5
2	3/2	49	1/2	4.944E-4	3.660E-4	2.988E-4	2.602E-4	2.106E-4	1.684E-4	1.510E-4	1.317E-4	1.088E-4	9.343E-5	8.243E-5
1	5/2	45	5/2	2.349E-4	1.258E-4	8.206E-5	6.069E-5	4.093E-5	2.900E-5	2.483E-5	2.075E-5	1.662E-5	1.403E-5	1.223E-5
2	3/2	48	1/2	2.951E-4	2.108E-4	1.717E-4	1.498E-4	1.223E-4	9.928E-5	8.939E-5	7.814E-5	6.483E-5	5.590E-5	4.949E-5
1	5/2	43	7/2	9.381E-5	5.719E-5	4.234E-5	3.448E-5	2.624E-5	2.043E-5	1.808E-5	1.556E-5	1.282E-5	1.102E-5	9.729E-6
2	3/2	47	1/2	2.155E-4	1.737E-4	1.518E-4	1.370E-4	1.155E-4	9.539E-5	8.611E-5	7.540E-5	6.285E-5	5.432E-5	4.811E-5
1	5/2	41	7/2	6.386E-4	5.376E-4	4.784E-4	4.343E-4	3.688E-4	3.057E-4	2.758E-4	2.412E-4	2.011E-4	1.738E-4	1.538E-4
1	5/2	39	5/2	8.957E-5	6.936E-5	5.936E-5	5.258E-5	4.354E-5	3.565E-5	3.207E-5	2.799E-5	2.332E-5	2.015E-5	1.784E-5
1	5/2	36	3/2	2.599E-4	1.359E-4	8.566E-5	6.108E-5	3.876E-5	2.582E-5	2.148E-5	1.740E-5	1.349E-5	1.115E-5	9.570E-6
2	3/2	45	5/2	6.314E-4	3.787E-4	2.710E-4	2.150E-4	1.581E-4	1.188E-4	1.037E-4	8.808E-5	7.146E-5	6.069E-5	5.308E-5
2	3/2	44	5/2	8.735E-4	4.581E-4	2.877E-4	2.044E-4	1.290E-4	8.612E-5	7.208E-5	5.900E-5	4.644E-5	3.888E-5	3.376E-5
1	5/2	34	5/2	2.099E-4	1.540E-4	1.257E-4	1.071E-4	8.386E-5	6.469E-5	5.659E-5	4.791E-5	3.851E-5	3.241E-5	2.809E-5
1	5/2	33	5/2	4.547E-4	3.745E-4	3.301E-4	2.980E-4	2.516E-4	2.080E-4	1.876E-4	1.640E-4	1.367E-4	1.181E-4	1.045E-4
1	5/2	32	3/2	2.452E-4	1.390E-4	9.559E-5	7.382E-5	5.272E-5	3.908E-5	3.400E-5	2.883E-5	2.340E-5	1.992E-5	1.746E-5
2	3/2	42	1/2	3.671E-3	3.171E-3	2.844E-3	2.592E-3	2.208E-3	1.833E-3	1.654E-3	1.447E-3	1.206E-3	1.042E-3	9.223E-4
1	5/2	31	3/2	1.935E-3	1.660E-3	1.482E-3	1.346E-3	1.141E-3	9.427E-4	8.493E-4	7.414E-4	6.166E-4	5.318E-4	4.701E-4
1	5/2	30	7/2	8.013E-4	4.439E-4	2.958E-4	2.220E-4	1.526E-4	1.106E-4	9.574E-5	8.093E-5	6.575E-5	5.613E-5	4.939E-5
2	3/2	40	1/2	2.630E-4	1.649E-4	1.217E-4	9.862E-5	7.451E-5	5.777E-5	5.113E-5	4.401E-5	3.622E-5	3.112E-5	2.748E-5
2	3/2	39	5/2	5.631E-3	4.835E-3	4.322E-3	3.927E-3	3.332E-3	2.757E-3	2.484E-3	2.169E-3	1.805E-3	1.558E-3	1.377E-3
2	3/2	38	5/2	3.761E-4	2.124E-4	1.439E-4	1.092E-4	7.588E-5	5.505E-5	4.755E-5	4.007E-5	3.236E-5	2.746E-5	2.404E-5
1	5/2	28	7/2	5.357E-4	3.679E-4	2.939E-4	2.516E-4	2.021E-4	1.626E-4	1.455E-4	1.264E-4	1.048E-4	9.038E-5	7.992E-5
1	5/2	27	3/2	4.827E-4	4.140E-4	3.709E-4	3.377E-4	2.875E-4	2.387E-4	2.154E-4	1.884E-4	1.571E-4	1.358E-4	1.202E-4
1	5/2	26	5/2	1.034E-4	7.095E-5	5.507E-5	4.499E-5	3.312E-5	2.403E-5	2.044E-5	1.679E-5	1.301E-5	1.065E-5	9.023E-6
1	5/2	25	3/2	5.293E-4	3.315E-4	2.473E-4	2.023E-4	1.545E-4	1.204E-4	1.067E-4	9.184E-5	7.558E-5	6.491E-5	5.728E-5
2	3/2	37	5/2	6.399E-4	2.949E-4	1.587E-4	9.510E-5	4.281E-5	1.871E-5	1.253E-5	7.888E-6	4.690E-6	3.294E-6	2.575E-6

Table S3 continued

$a$	$J_a$	$b$	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
2	3/2	35	1/2	4.263E-4	3.460E-4	3.020E-4	2.715E-4	2.285E-4	1.884E-4	1.697E-4	1.482E-4	1.234E-4	1.066E-4	9.429E-5
1	5/2	23	5/2	8.927E-4	5.566E-4	4.110E-4	3.335E-4	2.524E-4	1.958E-4	1.731E-4	1.489E-4	1.226E-4	1.053E-4	9.294E-5
1	5/2	21	3/2	3.852E-3	3.313E-3	2.966E-3	2.700E-3	2.295E-3	1.902E-3	1.715E-3	1.499E-3	1.248E-3	1.077E-3	9.531E-4
2	3/2	34	5/2	1.743E-3	1.481E-3	1.319E-3	1.195E-3	1.012E-3	8.360E-4	7.529E-4	6.570E-4	5.464E-4	4.713E-4	4.166E-4
1	5/2	20	7/2	1.099E-3	5.808E-4	3.718E-4	2.697E-4	1.766E-4	1.229E-4	1.048E-4	8.747E-5	7.027E-5	5.962E-5	5.227E-5
1	5/2	19	5/2	3.517E-3	2.986E-3	2.660E-3	2.415E-3	2.048E-3	1.696E-3	1.529E-3	1.336E-3	1.112E-3	9.602E-4	8.494E-4
1	5/2	18	3/2	4.561E-5	3.092E-5	2.422E-5	2.007E-5	1.516E-5	1.134E-5	9.793E-6	8.178E-6	6.463E-6	5.377E-6	4.624E-6
2	3/2	33	5/2	2.932E-3	2.480E-3	2.205E-3	1.997E-3	1.689E-3	1.395E-3	1.256E-3	1.097E-3	9.120E-4	7.868E-4	6.955E-4
2	3/2	32	3/2	4.486E-4	2.195E-4	1.274E-4	8.338E-5	4.545E-5	2.628E-5	2.074E-5	1.603E-5	1.204E-5	9.864E-6	8.483E-6
2	3/2	31	3/2	2.773E-3	2.366E-3	2.109E-3	1.915E-3	1.623E-3	1.342E-3	1.209E-3	1.056E-3	8.783E-4	7.579E-4	6.702E-4
1	5/2	16	5/2	2.246E-3	1.910E-3	1.704E-3	1.547E-3	1.312E-3	1.086E-3	9.786E-4	8.547E-4	7.114E-4	6.141E-4	5.431E-4
1	5/2	15	7/2	2.168E-3	1.799E-3	1.577E-3	1.414E-3	1.180E-3	9.623E-4	8.620E-4	7.481E-4	6.179E-4	5.304E-4	4.672E-4
1	5/2	14	5/2	9.389E-4	7.786E-4	6.840E-4	6.141E-4	5.141E-4	4.209E-4	3.777E-4	3.283E-4	2.720E-4	2.340E-4	2.063E-4
2	3/2	29	1/2	1.771E-4	1.394E-4	1.181E-4	1.047E-4	8.566E-5	6.910E-5	6.205E-5	5.404E-5	4.452E-5	3.821E-5	3.373E-5
2	3/2	27	3/2	6.672E-3	5.728E-3	5.122E-3	4.656E-3	3.952E-3	3.271E-3	2.948E-3	2.574E-3	2.142E-3	1.848E-3	1.634E-3
2	3/2	26	5/2	1.484E-3	1.248E-3	1.107E-3	1.002E-3	8.469E-4	6.990E-4	6.295E-4	5.493E-4	4.568E-4	3.941E-4	3.484E-4
2	3/2	25	3/2	3.444E-4	2.028E-4	1.418E-4	1.103E-4	7.915E-5	5.905E-5	5.154E-5	4.383E-5	3.575E-5	3.056E-5	2.689E-5
2	3/2	24	1/2	3.282E-4	2.634E-4	2.289E-4	2.053E-4	1.723E-4	1.419E-4	1.277E-4	1.115E-4	9.293E-5	8.025E-5	7.098E-5
1	5/2	13	5/2	3.653E-3	3.124E-3	2.791E-3	2.534E-3	2.150E-3	1.780E-3	1.604E-3	1.400E-3	1.165E-3	1.006E-3	8.894E-4
1	5/2	12	3/2	1.578E-4	1.140E-4	9.429E-5	8.195E-5	6.623E-5	5.327E-5	4.769E-5	4.142E-5	3.424E-5	2.945E-5	2.601E-5
2	3/2	23	5/2	3.404E-4	2.268E-4	1.756E-4	1.468E-4	1.144E-4	8.993E-5	7.979E-5	6.878E-5	5.662E-5	4.860E-5	4.284E-5
2	3/2	22	1/2	2.103E-4	1.742E-4	1.531E-4	1.379E-4	1.159E-4	9.515E-5	8.554E-5	7.454E-5	6.186E-5	5.328E-5	4.705E-5
2	3/2	21	3/2	9.376E-4	7.776E-4	6.834E-4	6.142E-4	5.147E-4	4.218E-4	3.784E-4	3.290E-4	2.726E-4	2.345E-4	2.068E-4
1	5/2	11	7/2	1.650E-3	1.372E-3	1.206E-3	1.084E-3	9.081E-4	7.441E-4	6.679E-4	5.809E-4	4.814E-4	4.143E-4	3.655E-4
2	3/2	19	5/2	8.183E-4	6.568E-4	5.700E-4	5.094E-4	4.245E-4	3.467E-4	3.110E-4	2.703E-4	2.237E-4	1.924E-4	1.697E-4
1	5/2	10	5/2	2.124E-3	1.791E-3	1.587E-3	1.434E-3	1.209E-3	9.952E-4	8.951E-4	7.800E-4	6.474E-4	5.578E-4	4.926E-4
2	3/2	16	5/2	9.264E-4	7.784E-4	6.874E-4	6.196E-4	5.207E-4	4.272E-4	3.836E-4	3.337E-4	2.766E-4	2.380E-4	2.100E-4
1	5/2	8	3/2	6.909E-5	4.235E-5	3.234E-5	2.678E-5	2.047E-5	1.590E-5	1.405E-5	1.203E-5	9.824E-6	8.400E-6	7.397E-6
2	3/2	13	5/2	4.421E-4	3.708E-4	3.281E-4	2.963E-4	2.497E-4	2.056E-4	1.849E-4	1.611E-4	1.338E-4	1.153E-4	1.019E-4
1	5/2	7	7/2	1.012E-4	5.654E-5	4.101E-5	3.283E-5	2.417E-5	1.812E-5	1.584E-5	1.349E-5	1.095E-5	9.316E-6	8.165E-6
1	5/2	6	5/2	4.744E-4	3.712E-4	3.166E-4	2.790E-4	2.283E-4	1.832E-4	1.631E-4	1.406E-4	1.154E-4	9.859E-5	8.653E-5
2	3/2	12	3/2	5.705E-4	4.615E-4	3.994E-4	3.553E-4	2.939E-4	2.379E-4	2.124E-4	1.838E-4	1.513E-4	1.297E-4	1.140E-4
1	5/2	5	3/2	1.921E-4	1.237E-4	9.426E-5	7.659E-5	5.653E-5	4.170E-5	3.589E-5	2.989E-5	2.359E-5	1.960E-5	1.683E-5
2	3/2	9	1/2	2.329E-5	1.150E-5	7.227E-6	4.992E-6	2.875E-6	1.762E-6	1.452E-6	1.186E-6	9.334E-7	7.844E-7	6.855E-7
2	3/2	8	3/2	9.619E-5	4.932E-5	3.173E-5	2.234E-5	1.340E-5	8.535E-6	7.100E-6	5.827E-6	4.603E-6	3.857E-6	3.349E-6
1	5/2	4	3/2	1.452E-3	8.928E-4	6.281E-4	4.867E-4	3.335E-4	2.354E-4	2.002E-4	1.643E-4	1.281E-4	1.067E-4	9.251E-5
1	5/2	3	7/2	2.019E-4	1.090E-4	7.443E-5	5.545E-5	3.636E-5	2.467E-5	2.075E-5	1.702E-5	1.332E-5	1.104E-5	9.480E-6
2	3/2	5	3/2	2.899E-4	2.400E-4	2.100E-4	1.882E-4	1.572E-4	1.284E-4	1.151E-4	9.994E-5	8.268E-5	7.106E-5	6.264E-5
2	3/2	4	3/2	9.984E-4	5.582E-4	3.571E-4	2.525E-4	1.520E-4	9.489E-5	7.634E-5	5.922E-5	4.387E-5	3.531E-5	2.983E-5

**Table S4.** Cross sections ( $10^{-20} \text{ m}^2$ ) for  $\text{Xe}^{10+}$  at incident electron energies 200, 300, 400, 500, 700, 1000, 1200, 1500, 2000, 2500, 3000 eV.  $a$  and  $b$  refer to the indices of the initial and final levels, respectively.

$a$	$J_a$	$b$	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
3	3	57	3	4.131E-3	3.379E-3	2.910E-3	2.580E-3	2.134E-3	1.728E-3	1.544E-3	1.339E-3	1.109E-3	9.541E-4	8.416E-4
6	1	56	2	7.345E-2	6.009E-2	5.176E-2	4.586E-2	3.790E-2	3.064E-2	2.735E-2	2.371E-2	1.961E-2	1.684E-2	1.483E-2
7	4	57	3	7.242E-2	5.876E-2	5.035E-2	4.446E-2	3.658E-2	2.945E-2	2.626E-2	2.272E-2	1.875E-2	1.609E-2	1.415E-2
8	2	57	3	9.442E-3	7.737E-3	6.672E-3	5.917E-3	4.896E-3	3.962E-3	3.538E-3	3.069E-3	2.540E-3	2.182E-3	1.921E-3
8	2	56	2	2.199E-2	1.797E-2	1.548E-2	1.371E-2	1.133E-2	9.155E-3	8.172E-3	7.083E-3	5.858E-3	5.031E-3	4.430E-3
8	2	55	2	8.127E-2	6.630E-2	5.703E-2	5.046E-2	4.165E-2	3.361E-2	2.998E-2	2.597E-2	2.147E-2	1.843E-2	1.622E-2
2	2	48	3	1.197E-2	9.837E-3	8.499E-3	7.544E-3	6.252E-3	5.060E-3	4.520E-3	3.922E-3	3.246E-3	2.788E-3	2.455E-3
6	1	52	0	3.737E-2	3.044E-2	2.616E-2	2.314E-2	1.908E-2	1.539E-2	1.372E-2	1.188E-2	9.816E-3	8.423E-3	7.411E-3
7	4	54	5	1.377E-1	1.131E-1	9.766E-2	8.664E-2	7.175E-2	5.805E-2	5.184E-2	4.496E-2	3.720E-2	3.196E-2	2.813E-2
1	4	44	5	1.355E-1	1.112E-1	9.597E-2	8.513E-2	7.049E-2	5.701E-2	5.091E-2	4.415E-2	3.653E-2	3.137E-2	2.762E-2
3	3	47	2	3.529E-2	2.871E-2	2.465E-2	2.179E-2	1.796E-2	1.447E-2	1.290E-2	1.117E-2	9.221E-3	7.910E-3	6.959E-3
3	3	46	4	1.407E-1	1.154E-1	9.955E-2	8.828E-2	7.307E-2	5.909E-2	5.275E-2	4.575E-2	3.784E-2	3.250E-2	2.861E-2
2	2	45	3	8.970E-2	7.352E-2	6.342E-2	5.623E-2	4.652E-2	3.761E-2	3.357E-2	2.911E-2	2.408E-2	2.068E-2	1.820E-2
1	4	43	3	4.262E-2	3.464E-2	2.972E-2	2.626E-2	2.163E-2	1.743E-2	1.553E-2	1.345E-2	1.110E-2	9.521E-3	8.375E-3
7	4	53	3	7.248E-5	5.423E-5	4.500E-5	3.926E-5	3.207E-5	2.572E-5	2.293E-5	1.988E-5	1.639E-5	1.411E-5	1.250E-5
3	3	45	3	1.615E-2	1.317E-2	1.133E-2	1.002E-2	8.271E-3	6.673E-3	5.952E-3	5.155E-3	4.260E-3	3.656E-3	3.217E-3
1	4	42	4	1.067E-1	8.707E-2	7.491E-2	6.631E-2	5.474E-2	4.418E-2	3.941E-2	3.414E-2	2.821E-2	2.421E-2	2.130E-2
8	2	53	3	7.952E-2	6.516E-2	5.619E-2	4.981E-2	4.121E-2	3.330E-2	2.973E-2	2.577E-2	2.131E-2	1.830E-2	1.611E-2
6	1	50	2	3.072E-2	2.510E-2	2.161E-2	1.913E-2	1.580E-2	1.275E-2	1.138E-2	9.858E-3	8.147E-3	6.992E-3	6.152E-3
7	4	51	4	1.014E-1	8.291E-2	7.142E-2	6.326E-2	5.228E-2	4.221E-2	3.766E-2	3.264E-2	2.698E-2	2.315E-2	2.038E-2
6	1	49	1	4.318E-2	3.538E-2	3.050E-2	2.704E-2	2.237E-2	1.807E-2	1.613E-2	1.398E-2	1.156E-2	9.926E-3	8.737E-3
6	1	47	2	5.914E-2	4.850E-2	4.184E-2	3.710E-2	3.071E-2	2.482E-2	2.216E-2	1.921E-2	1.589E-2	1.364E-2	1.201E-2
7	4	40	3	4.203E-3	3.612E-3	3.230E-3	2.945E-3	2.510E-3	2.081E-3	1.881E-3	1.650E-3	1.376E-3	1.190E-3	1.054E-3
8	2	40	3	1.443E-3	1.246E-3	1.119E-3	1.023E-3	8.755E-4	7.287E-4	6.596E-4	5.794E-4	4.841E-4	4.191E-4	3.717E-4
7	4	39	3	2.106E-3	1.792E-3	1.592E-3	1.445E-3	1.226E-3	1.011E-3	9.115E-4	7.975E-4	6.636E-4	5.727E-4	5.068E-4
4	2	34	3	2.663E-3	2.299E-3	2.066E-3	1.890E-3	1.617E-3	1.345E-3	1.218E-3	1.069E-3	8.927E-4	7.726E-4	6.853E-4
6	1	36	2	2.893E-3	2.455E-3	2.182E-3	1.981E-3	1.682E-3	1.390E-3	1.255E-3	1.099E-3	9.153E-4	7.907E-4	7.002E-4
8	2	38	1	1.010E-3	8.639E-4	7.740E-4	7.060E-4	6.021E-4	5.004E-4	4.525E-4	3.969E-4	3.311E-4	2.865E-4	2.540E-4
7	4	37	5	2.900E-3	2.463E-3	2.190E-3	1.985E-3	1.681E-3	1.387E-3	1.251E-3	1.094E-3	9.096E-4	7.850E-4	6.947E-4
4	2	30	2	3.546E-3	3.056E-3	2.741E-3	2.503E-3	2.138E-3	1.776E-3	1.607E-3	1.410E-3	1.177E-3	1.018E-3	9.024E-4
3	3	25	3	2.481E-4	2.016E-4	1.770E-4	1.592E-4	1.339E-4	1.106E-4	9.960E-5	8.690E-5	7.226E-5	6.245E-5	5.534E-5
1	4	17	3	2.772E-3	2.390E-3	2.145E-3	1.959E-3	1.674E-3	1.392E-3	1.259E-3	1.105E-3	9.222E-4	7.979E-4	7.076E-4
9	0	41	1	1.413E-2	1.226E-2	1.105E-2	1.012E-2	8.672E-3	7.231E-3	6.548E-3	5.752E-3	4.808E-3	4.164E-3	3.695E-3
2	2	22	1	3.025E-3	2.604E-3	2.335E-3	2.131E-3	1.818E-3	1.510E-3	1.365E-3	1.197E-3	9.987E-4	8.638E-4	7.657E-4
8	2	35	1	1.541E-3	1.325E-3	1.190E-3	1.088E-3	9.302E-4	7.749E-4	7.015E-4	6.158E-4	5.144E-4	4.454E-4	3.952E-4
3	3	23	4	5.111E-3	4.410E-3	3.965E-3	3.625E-3	3.099E-3	2.579E-3	2.334E-3	2.048E-3	1.710E-3	1.480E-3	1.312E-3

Table S4 continued

$a$	$J_a$	$b$	$J_b$	200	300	400	500	700	1000	1200	1500	2000	2500	3000
1	4	15	5	3.716E-3	3.178E-3	2.845E-3	2.595E-3	2.211E-3	1.836E-3	1.660E-3	1.455E-3	1.213E-3	1.049E-3	9.301E-4
4	2	28	3	2.453E-3	2.112E-3	1.896E-3	1.731E-3	1.478E-3	1.229E-3	1.111E-3	9.749E-4	8.136E-4	7.039E-4	6.242E-4
1	4	14	4	9.568E-4	8.182E-4	7.323E-4	6.675E-4	5.688E-4	4.724E-4	4.271E-4	3.745E-4	3.123E-4	2.701E-4	2.395E-4
4	2	27	1	2.236E-3	1.914E-3	1.711E-3	1.558E-3	1.325E-3	1.098E-3	9.912E-4	8.683E-4	7.234E-4	6.251E-4	5.537E-4
3	3	21	2	7.683E-4	6.479E-4	5.768E-4	5.247E-4	4.464E-4	3.704E-4	3.348E-4	2.935E-4	2.448E-4	2.118E-4	1.877E-4
8	2	34	3	1.555E-3	1.327E-3	1.186E-3	1.079E-3	9.177E-4	7.611E-4	6.875E-4	6.023E-4	5.021E-4	4.341E-4	3.847E-4
1	4	13	4	3.526E-3	3.008E-3	2.685E-3	2.442E-3	2.077E-3	1.721E-3	1.554E-3	1.362E-3	1.135E-3	9.811E-4	8.693E-4
3	3	20	2	1.012E-3	8.687E-4	7.791E-4	7.110E-4	6.069E-4	5.047E-4	4.565E-4	4.005E-4	3.343E-4	2.893E-4	2.565E-4
5	0	29	1	5.618E-3	4.833E-3	4.336E-3	3.959E-3	3.379E-3	2.809E-3	2.540E-3	2.228E-3	1.859E-3	1.608E-3	1.426E-3
3	3	19	3	2.082E-3	1.779E-3	1.590E-3	1.449E-3	1.234E-3	1.024E-3	9.253E-4	8.111E-4	6.764E-4	5.849E-4	5.184E-4
1	4	12	3	1.142E-3	9.577E-4	8.456E-4	7.632E-4	6.427E-4	5.284E-4	4.756E-4	4.153E-4	3.448E-4	2.973E-4	2.629E-4
7	4	32	4	5.375E-3	4.629E-3	4.157E-3	3.796E-3	3.241E-3	2.696E-3	2.439E-3	2.139E-3	1.785E-3	1.545E-3	1.370E-3
7	4	31	3	1.384E-3	1.176E-3	1.046E-3	9.502E-4	8.067E-4	6.670E-4	6.020E-4	5.272E-4	4.392E-4	3.794E-4	3.360E-4
2	2	18	1	1.084E-3	9.292E-4	8.324E-4	7.589E-4	6.467E-4	5.369E-4	4.853E-4	4.254E-4	3.547E-4	3.068E-4	2.719E-4
8	2	33	1	9.688E-4	8.230E-4	7.329E-4	6.661E-4	5.654E-4	4.678E-4	4.223E-4	3.698E-4	3.079E-4	2.659E-4	2.355E-4
4	2	24	1	1.323E-3	1.135E-3	1.017E-3	9.275E-4	7.906E-4	6.565E-4	5.934E-4	5.202E-4	4.338E-4	3.752E-4	3.326E-4
1	4	11	4	9.345E-4	7.872E-4	6.980E-4	6.326E-4	5.353E-4	4.420E-4	3.987E-4	3.489E-4	2.902E-4	2.506E-4	2.219E-4
8	2	31	3	2.803E-3	2.410E-3	2.164E-3	1.976E-3	1.687E-3	1.403E-3	1.269E-3	1.113E-3	9.292E-4	8.042E-4	7.132E-4
7	4	26	4	8.988E-4	7.544E-4	6.692E-4	6.063E-4	5.128E-4	4.238E-4	3.824E-4	3.345E-4	2.782E-4	2.403E-4	2.129E-4
1	4	10	3	5.357E-4	4.392E-4	3.852E-4	3.473E-4	2.928E-4	2.415E-4	2.179E-4	1.907E-4	1.588E-4	1.372E-4	1.216E-4
2	2	16	3	1.203E-3	1.020E-3	9.083E-4	8.255E-4	7.009E-4	5.806E-4	5.244E-4	4.594E-4	3.828E-4	3.309E-4	2.932E-4