

## ADF39: Opacity project extension: photoionisation cross-sections

The basic process is inner shell photo-ionisation  $(n_c l_c^q)nl + \gamma \rightarrow (n_c l_c^{q-1})nl + e$ . A separate file is provided for each  $n$ . It is convenient at the production stage to separate the level list file (denoted by the postfix 'l') from the partial cross-section file (denoted by postfix 'px'). Separate files are given for term (LS) coupling and intermediate (IC) coupling. Outer shell photo-ionisation,  $(n_c l_c^q)nl + \gamma \rightarrow (n_c l_c^q) + e$ , is included for completeness. Where inner shell photo-ionisation is present, the atomic structure is optimised for the inner-shell processes

*Utilising subroutines :*

ADAS204?      ADAS208?      ADAS212?

*Formatted files to ADF39 specification :*

Database Status	Date = March 17, 2003	Data type =pea files	Data root =/.../adas/adas/adf39/			
<i>Recombining seq.</i>	<i>Library</i>	<i>Elements</i>	<i>Members</i>	<i>n</i>	<i>Comments</i>	<i>Quality</i>
Bare nucleus	nrb02##	He, C, O, S, Fe	<ion>lsK<n>l.dat	1,2,3,4,5,6	LS resolution	medium
		He, C, O, S, Fe	<ion>icK<n>l.dat	1,2,3,4,5,6	IC resolution	medium
		He, C, O, S, Fe	<ion>lsK<n>px.dat	1,2,3,4,5,6	LS resolution	medium
		He, C, O, S, Fe	<ion>icK<n>px.dat	1,2,3,4,5,6	IC resolution	medium
H-like.	nrb02#h	He, C, O, S, Fe	<ion>lsK<n>l.dat	1,2,3,4,5,6	LS resolution	medium
		He, C, O, S, Fe	<ion>icK<n>l.dat	1,2,3,4,5,6	IC resolution	medium
		He, C, O, S, Fe	<ion>lsK<n>px.dat	1,2,3,4,5,6	LS resolution	medium
		He, C, O, S, Fe	<ion>icK<n>px.dat	1,2,3,4,5,6	IC resolution	medium
He-like.	nrb02#he	C, O, S, Fe	<ion>lsK<n>l.dat	1,2,3,4,5,6	LS resolution	medium
		C, O, S, Fe	<ion>icK<n>l.dat	1,2,3,4,5,6	IC resolution	medium
		C, O, S, Fe	<ion>lsK<n>px.dat	1,2,3,4,5,6	LS resolution	medium
		C, O, S, Fe	<ion>icK<n>px.dat	1,2,3,4,5,6	IC resolution	medium
		C, O, S, Fe	<ion>lsL<n>l.dat	2,3,4	IC resolution	medium
		C, O, S, Fe	<ion>icL<n>l.dat	2,3,4	IC resolution	medium
		C, O, S, Fe	<ion>lsL<n>px.dat	2,3,4	LS resolution	medium
		C, O, S, Fe	<ion>icL<n>px.dat	2,3,4	IC resolution	medium
Li-like.	nrb02#li	C, O, S, Fe	<ion>lsK<n>l.dat	2,3,4,5,6	LS resolution	medium

C, O, S, Fe	<ion>icK<n>l.dat	2,3,4,5,6	IC resolution	medium
C, O, S, Fe	<ion>lsK<n>px.dat	2,3,4,5,6	LS resolution	medium
C, O, S, Fe	<ion>icK<n>px.dat	2,3,4,5,6	IC resolution	medium
C, O, S, Fe	<ion>lsL<n>l.dat	2,3,4	LS resolution	medium
C, O, S, Fe	<ion>icL<n>l.dat	2,3,4	IC resolution	medium
C, O, S, Fe	<ion>lsL<n>px.dat	2,3,4	LS resolution	medium
C, O, S, Fe	<ion>icL<n>px.dat	2,3,4	IC resolution	medium

Notes:

*Data lines for LS coupled 'I' file:*

[prescribed text], SEQ, [prescribed text], IZO, CCPLG  
[blank line]  
[prescribed text], BWNP, [prescribed text], NPRNT  
[prescribed text field]  
[prescribed text field]  
[prescribed text field]  
for indp=1, NPRNT  
INDP, IND0, CFGP, ISP, ILP, XJP, WNPI  
repeat  
[blank line]  
[prescribed text], BWNR, [prescribed text], NTRM  
[prescribed text field]  
[prescribed text field]  
[prescribed text field]

*Format:*

1a5,1a2,1a11,i2,50x,1a4  
1a80  
1a45,f12.1,1a8,i4  
1a23  
1a56  
1a56  
i6,i6,4x,1a20,1x,i1,1x,i1,1x,f4.1,2x,f10.1  
1a80  
1a45,f12.1,1a7,i5  
1a28  
1a56  
1a56

for indx=1,NTRM

INDX,IRSL,CFGT,IS, IL, XJ, WNRT

i6,i6,4x,1a20,1x,i1,1x,i1,1x,f4.1,2x,f10.1

repeat

[blank line]

1a80

[prescribed comment line]

1a80

[prescribed comment line]

1a80

[prescribed comment line]

1a80

[prescribed comment line]

1a80

*variable identification :*

*name*

*meaning*

SEQ

sequence identifier (two characters)

IZO

nuclear charge

CCPLG

coupling scheme, 'LS/' => LS coupling

BWNP

binding wave number of lowest parent (cm-1)

NPRNT

number of metastable parents (including ground parent)

INDP

index of parent

IND0

parent idindex as used in the 'px' file

CFGP

configuration (or Eissner code therefor) for parent.

ISP

multiplicity of parent ( $2S_p+1$ )

ILP

total orbital quantum number ( $L_p$ ) for parent

XJP

(statist. weight - 1)/2 of parent term

WNPI

energy of parent term relative to lowest parent (cm-1)

BWNR

binding wave number of lowest resolved term (cm-1)

NTRM

number of terms in LS-resolved set

INDX

index value for term

IRSL            initial term index as used in the 'px' file  
 CFGT           configuration (or Eissner code therefor) for level.  
 IS              multiplicity for level (2\*S+1)  
 IL              total orbital quantum number for term  
 XJ              (statist. weight - 1)/2 for term  
 WNRI           energy of term relative to ground (cm-1)

Table B39c – example – LS coupling level list (l) file.

PARENT TERM INDEXING		BWNP= 3952439.9		NPRNT= 4	
INDP	CODE	S L	WI	WNP	
1	1S1	(2)0	( 0.5)	0.0	
2	3S1	(2)0	( 0.5)	3513280.1	
3	3P1	(2)1	( 2.5)	3513373.4	
4	3D1	(2)2	( 4.5)	3513448.2	

  

LS RESOLVED TERM INDEXING		BWNR= 4268185.4		NTRM= 6	
INDX	IRSL CODE	S L	WJ	WNR	
1	1 1S1 3S1	(3)0	( 1.0)	0.0	
2	2 1S1 3P1	(3)1	( 4.0)	14018.3	
3	3 1S1 3S1	(1)0	( 0.0)	15190.7	
4	4 1S1 3D1	(3)2	( 7.0)	22628.8	
5	5 1S1 3D1	(1)2	( 2.0)	23279.9	
6	6 1S1 3P1	(1)1	( 1.0)	25953.9	

C-----  
 C  
 C  
 C  
 C  
 C-----

Data lines for IC coupled 'l' file:

[prescribed text], SEQ, [prescribed text], IZ0, CFGP  
 [blank line]  
 [prescribed text], BWNP, [prescribed text], NPRNT  
 [prescribed text field]

Format:

1a5,1a2,1a11,i2,50x,1a4  
 1a80  
 1a45,f12.1,1a8,i4  
 1a23

[prescribed text field]	1a56
[prescribed text field]	1a56
for indp=1,NPRNT	
INDP, INDO, CFGP, ISP, ILP ,XJP,WNPI	i6,i6,4x,1a20,1x,i1,1x,i1,1x,f4.1,2x,f10.1
repeat	
[blank line]	1a80
[prescribed text], BWNR, [prescribed text], NLVL	1a45,f12.1,1a7,i5
[prescribed text field]	1a28
[prescribed text field]	1a56
[prescribed text field]	1a56
for indx=1,NLVL	
INDX,ISRL,CFGL,IS, IL, XJ, WNRL	i6,i6,4x,1a20,1x,i1,1x,i1,1x,f4.1,2x,f10.1
repeat	
[blank line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80

*variable identification :*

<i>name</i>	<i>meaning</i>
SEQ	sequence identifier (two characters)
IZO	nuclear charge
CFGP	coupling scheme, '/IC/' => intermediate coupling
BWNP	binding wave number of lowest parent(cm-1)
NPRNT	number of metastable parents (including ground parent)

INDP	index of parent
IND0	parent index as used in the 'px' file.
CFGP	configuration (or Eissner code therefor) for parent.
ISP	multiplicity of parent ( $2S_p+1$ )
ILP	total orbital quantum number ( $L_p$ ) for parent
XJP	J quantum number of parent level.
WNPI	energy of parent relative to lowest parent (cm-1)
BWNR	binding wave number of lowest resolved level (cm-1)
NLVL	number of levels in IC coupled set
INDX	index value for level
CFGL	configuration (or Eissner code therefor) for level.
IS	multiplicity for level ( $2*S+1$ )
IL	total orbital quantum number for level (L)
XJ	J quantum number of level.
WNRL	energy of level relative to ground (cm-1)

Table B39d – example – intermediate coupling level list (I) file.

PARENT LEVEL INDEXING		BWNP= 3952439.9		NPRNT= 6	
INDP	CODE	S L	WI	WNP	
1	1S1	(2)0	( 0.5)	0.0	
2	3P1	(2)1	( 0.5)	3513279.9	
3	3S1	(2)0	( 0.5)	3513280.1	
4	3D1	(2)2	( 1.5)	3513420.2	
5	3P1	(2)1	( 1.5)	3513420.2	
6	3D1	(2)2	( 2.5)	3513466.9	

  

IC RESOLVED LEVEL INDEXING				BWNR= 4268185.4		NLVL= 10	
INDX	IRSL	CODE	S L	WJ	WNR		
1	1	1S1 3S1	(3)0	( 1.0)	0.0		
2	2	1S1 3P1	(3)1	( 0.0)	13924.8		
3	3	1S1 3P1	(3)1	( 1.0)	13971.2		

4	4	1S1	3P1	(3)1( 2.0)	14065.1
5	5	1S1	3S1	(1)0( 0.0)	15190.7
6	6	1S1	3D1	(3)2( 1.0)	22600.8
7	7	1S1	3D1	(3)2( 2.0)	22618.7
8	8	1S1	3D1	(3)2( 3.0)	22647.5
9	9	1S1	3D1	(1)2( 2.0)	23280.7
10	10	1S1	3P1	(1)1( 1.0)	25954.2

C-----  
C  
C  
C  
C  
C-----

*Data lines for LS coupled 'px' file:*

ELEM, IZ, CCPLG,NENG

IENG(I),I=1,NENG

ENG(I),I=1,NENG

[blank line]

IPCS(I),I=1,NENG

until <blank line for each initial state> do

IRSL,G,INDP,(PCS(I),I=1,NENG)

repeat

[blank line]

[prescribed text],NRSLMX

[blank line]

[prescribed comment line]

[prescribed comment line]

[prescribed comment line]

[prescribed comment line]

*Format:*

1a2,i2,5x,1a4,26x,i2

39x,10(i2,10x)

31x,10e12.3

1a80

39x,10(i2,10x)

3i5, e15.6,10e12.3

1a80

1a10,i4

1a80

1a80

1a80

1a80

1a80

*variable identification :*

<i>name</i>	<i>meaning</i>
ELEM	sequence identifier (two characters)
IZ	nuclear charge
CCPLG	coupling scheme, '/LS/' => LS coupling
NENG	number of energies for tabulation
IENG()	indexing for energy tabulation
ENG()	ejected electron energies relative to respective parent (Ryd). Note that photo-ionisation from a given initial state to different final parents correspond to different photon energies.
IPCS()	indexing for photoionisation cross-section tabulation
IRSL	initial term (see term list in '1' file)
G	statistical weight of initial term
IND0	index of parent to which photoionisation occurs
DELI	threshold photo ionisation energy (Rydberg), from IRSL to INDP
PCS()	photoionisation cross-section (cm <sup>2</sup> )
NRSLMX	maximum initial n processed (assumes all l)

Table B39e – example – LS coupling rate coefficient (px) file.

C	5	/LS/	NENG=12										
			E: 1		3	4	5	6	7	8	9	10	
			11	12									
			0.000E+00	9.600E-01	1.600E+00	3.200E+00	4.800E+00	9.600E+00	1.600E+01	2.000E+01	2.400E+01	4.800E+01	
			7.200E+01	9.600E+01									
IRSL	G	IND0	DELI (RYD)	PCS: 1		3	4	5	6	7	8	9	10
				11	12								
4	15	1	2.671073E+00	1.360E-18	6.444E-19	4.092E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
				3.283E-24	7.807E-25								
5	5	1	2.665141E+00	1.357E-18	6.433E-19	4.087E-19	1.501E-19	6.417E-20	9.129E-21	1.538E-21	6.637E-22	3.273E-22	1.926E-23
				3.282E-24	7.807E-25								
2	9	1	2.749538E+00	1.375E-18	8.383E-19	6.132E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.470E-21	3.199E-21	3.604E-22
				9.040E-23	3.171E-23								
6	3	1	2.640773E+00	1.321E-18	8.137E-19	5.979E-19	2.961E-19	1.608E-19	3.853E-20	1.025E-20	5.444E-21	3.186E-21	3.596E-22
				9.027E-23	3.167E-23								
1	3	1	2.877282E+00	1.164E-18	7.741E-19	6.003E-19	3.397E-19	2.087E-19	6.833E-20	2.472E-20	1.529E-20	1.019E-20	1.969E-21
				6.988E-22	3.224E-22								
3	1	1	2.738854E+00	1.108E-18	7.462E-19	5.818E-19	3.320E-19	2.050E-19	6.761E-20	2.456E-20	1.521E-20	1.014E-20	1.967E-21



1	3	2	3.489262E+01	6.990E-22 1.761E-19 8.328E-21	3.227E-22 1.709E-19 4.574E-21	1.657E-19	1.509E-19	1.364E-19	1.008E-19	6.968E-20	5.644E-20	4.633E-20	1.747E-20
3	1	2	3.475419E+01	1.743E-19 8.315E-21	1.695E-19 4.568E-21	1.644E-19	1.500E-19	1.356E-19	1.004E-19	6.944E-20	5.627E-20	4.620E-20	1.744E-20
2	9	3	3.476573E+01	1.749E-19 8.317E-21	1.699E-19 4.569E-21	1.648E-19	1.502E-19	1.358E-19	1.005E-19	6.948E-20	5.629E-20	4.622E-20	1.744E-20
6	3	3	3.465696E+01	1.744E-19 8.309E-21	1.694E-19 4.565E-21	1.643E-19	1.498E-19	1.354E-19	1.002E-19	6.933E-20	5.618E-20	4.614E-20	1.742E-20
4	15	4	3.468794E+01	1.745E-19 8.311E-21	1.696E-19 4.566E-21	1.644E-19	1.499E-19	1.355E-19	1.003E-19	6.938E-20	5.621E-20	4.616E-20	1.743E-20
5	5	4	3.468201E+01	1.745E-19 8.311E-21	1.695E-19 4.566E-21	1.644E-19	1.499E-19	1.355E-19	1.003E-19	6.937E-20	5.621E-20	4.616E-20	1.743E-20
NRSLMX=			6										
C-----													
C													
C													
C													
C-----													

Data lines for IC coupled 'px' file:

ELEM, IZ, CCPLG, NENG

IENG(I), I=1, NENG

ENG(I), I=1, NENG

[blank line]

IPCS(I), I=1, NENG

until <blank line for each initial state> do

IRSL, G, INDP, DELI, (PCS(I), I=1, NENG)

repeat

[blank line]

[prescribed text], NRSLMX

[blank line]

[prescribed comment line]

[prescribed comment line]

[prescribed comment line]

[prescribed comment line]

Format:

1a2,i2,5x,1a4,26x,i2

39x,10(i2,10x)

31x,10e12.3

1a80

39x,10(i2,10x)

3i5, e15.6,10e12.3/30x, 10e12.3

1a80

1a10,i4

1a80

1a80

1a80

1a80

1a80

variable identification :

<i>name</i>	<i>meaning</i>
ELEM	sequence identifier (two characters)
IZ	nuclear charge
CCPLG	coupling scheme, '/IC/' => IC coupling
NENG	number of energies for tabulation
IENG()	indexing for energy tabulation
ENG()	ejected electron energies (Ryd)
IPCS()	indexing for photoionisation cross-section tabulation
IRSL	initial level (see level list in 'l' file)
G	statistical weight of level
IND0	index of parent to which photoionisation occurs
DELI	photon ionisation energy (Rydberg)
PCS()	photoionisation cross-section (cm <sup>2</sup> )
NRSLMX	maximum resolved n

Table B39f – example – intermediate coupling rate coefficient (px) file.

C	5	/IC/		NENG=12											
				E: 1	2	3	4	5	6	7	8	9	10		
				11	12										
				0.000E+00	9.600E-01	1.600E+00	3.200E+00	4.800E+00	9.600E+00	1.600E+01	2.000E+01	2.400E+01	4.800E+01		
				7.200E+01	9.600E+01										
IRSL	G	IND0	DELI (RYD)	PCS: 1	2	3	4	5	6	7	8	9	10		
				11	12										
1	3	1	2.877282E+00	1.164E-18	7.741E-19	6.003E-19	3.397E-19	2.087E-19	6.833E-20	2.472E-20	1.529E-20	1.019E-20	1.969E-21		

6	3	1	2.671329E+00	1.360E-18	6.44E-19	4.093E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
			3.283E-24	7.807E-25	7.807E-25	6.132E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.470E-21	3.199E-21	3.604E-22
3	3	1	1.375E-18	8.384E-19	3.374E-23	5.979E-19	2.961E-19	1.608E-19	3.853E-20	1.025E-20	5.444E-21	3.186E-21	3.596E-22
10	3	1	8.64E-23	8.137E-19	8.137E-19	5.818E-19	3.320E-19	2.050E-19	6.761E-20	2.456E-20	1.521E-20	1.014E-20	1.967E-21
			1.321E-18	3.167E-23	3.167E-23	4.093E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
5	1	1	1.008E-18	7.462E-19	7.462E-19	4.087E-19	1.501E-19	6.417E-20	9.129E-21	1.538E-21	6.637E-22	3.273E-22	1.926E-23
			6.990E-22	3.227E-22	3.227E-22	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
7	5	1	1.360E-18	7.807E-25	7.807E-25	6.444E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
			3.283E-24	7.807E-25	7.807E-25	6.444E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
9	5	1	1.357E-18	6.433E-19	6.433E-19	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
			3.282E-24	7.807E-25	7.807E-25	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
2	1	1	1.376E-18	8.385E-19	8.385E-19	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
			9.041E-23	3.171E-23	3.171E-23	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
4	5	1	1.375E-18	8.382E-19	8.382E-19	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
			9.040E-23	3.171E-23	3.171E-23	6.133E-19	3.017E-19	1.631E-19	3.888E-20	1.031E-20	5.471E-21	3.199E-21	3.604E-22
8	7	1	1.360E-18	6.443E-19	6.443E-19	4.092E-19	1.503E-19	6.422E-20	9.133E-21	1.539E-21	6.639E-22	3.274E-22	1.926E-23
			3.283E-24	7.807E-25	7.807E-25	1.107E-19	1.009E-19	9.123E-20	6.749E-20	4.668E-20	3.782E-20	3.105E-20	1.172E-20
3	3	2	1.175E-19	1.142E-19	1.142E-19	2.305E-42	2.101E-42	1.899E-42	1.405E-42	9.717E-43	7.873E-43	6.464E-43	2.440E-43
			5.588E-21	3.070E-21	3.070E-21	5.392E-20	4.915E-20	4.444E-20	3.288E-20	2.275E-20	1.844E-20	1.514E-20	5.717E-21
4	5	2	2.446E-42	2.376E-42	2.376E-42	1.648E-19	1.502E-19	1.358E-19	1.005E-19	6.948E-20	5.629E-20	4.622E-20	1.744E-20
			1.163E-43	6.390E-44	6.390E-44	1.644E-19	1.500E-19	1.356E-19	1.004E-19	6.944E-20	5.627E-20	4.620E-20	1.744E-20
10	3	2	5.722E-20	5.559E-20	5.559E-20	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			2.726E-21	1.498E-21	1.498E-21	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
2	1	2	1.749E-19	1.699E-19	1.699E-19	1.657E-19	1.509E-19	1.364E-19	1.008E-19	6.968E-20	5.644E-20	4.633E-20	1.747E-20
			8.317E-21	4.569E-21	4.569E-21	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
5	1	3	3.475419E+01	1.743E-19	1.695E-19	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			8.315E-21	4.568E-21	4.568E-21	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
7	5	3	3.468650E+01	5.818E-25	2.084E-25	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			5.818E-25	1.545E-31	1.545E-31	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
9	5	3	3.468047E+01	5.817E-25	2.084E-25	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			1.545E-31	1.545E-31	1.545E-31	1.657E-19	1.509E-19	1.364E-19	1.008E-19	6.968E-20	5.644E-20	4.633E-20	1.747E-20
1	3	3	3.489262E+01	1.761E-19	1.709E-19	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			8.328E-21	4.574E-21	4.574E-21	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
6	3	3	3.468667E+01	5.818E-25	2.084E-25	1.145E-25	3.194E-26	1.118E-26	1.086E-27	1.376E-28	5.276E-29	2.373E-29	1.035E-30
			1.545E-31	1.545E-31	1.545E-31	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
3	3	3	3.476531E+01	5.728E-25	2.660E-25	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			5.728E-25	2.660E-25	2.660E-25	1.684E-25	6.323E-26	2.808E-26	4.590E-27	9.172E-28	4.330E-28	2.311E-28	1.934E-29
10	3	3	3.465611E+01	5.710E-25	2.652E-25	1.684E-25	6.323E-26	2.808E-26	4.590E-27	9.172E-28	4.338E-28	2.315E-28	1.936E-29
			4.249E-30	1.382E-30	1.382E-30	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
2	1	3	3.476573E+01	5.728E-25	2.660E-25	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			4.254E-30	1.383E-30	1.383E-30	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
4	5	3	3.476445E+01	5.728E-25	2.660E-25	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			4.254E-30	1.383E-30	1.383E-30	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
8	7	3	3.468624E+01	5.818E-25	2.084E-25	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			5.818E-25	1.545E-31	1.545E-31	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
7	5	4	3.468778E+01	1.106E-19	1.074E-19	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			5.267E-21	2.894E-21	2.894E-21	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
8	7	4	3.468752E+01	1.606E-33	1.560E-33	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			7.647E-35	4.201E-35	4.201E-35	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
9	5	4	3.468175E+01	6.393E-20	6.211E-20	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			3.045E-21	1.673E-21	1.673E-21	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
6	3	4	3.468794E+01	1.745E-19	1.698E-19	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			8.311E-21	4.566E-21	4.566E-21	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
3	3	5	3.476658E+01	5.740E-20	5.576E-20	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			2.729E-21	1.499E-21	1.499E-21	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
10	3	5	3.465739E+01	1.172E-19	1.138E-19	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
			5.582E-21	3.067E-21	3.067E-21	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29
4	5	5	3.476573E+01	1.749E-19	1.699E-19	1.689E-25	6.341E-26	2.818E-26	4.601E-27	9.192E-28	4.338E-28	2.315E-28	1.936E-29

2	1	5	3.476701E+01	1.600E-42	1.554E-42	1.507E-42	1.373E-42	1.242E-42	9.185E-43	6.353E-43	5.147E-43	4.226E-43	1.595E-43
6	3	6	3.468837E+01	7.605E-44	4.178E-44	4.049E-33	3.691E-33	3.337E-33	2.469E-33	1.708E-33	1.384E-33	1.137E-33	4.291E-34
7	5	6	3.468821E+01	8.847E-34	4.248E-34	6.024E-20	5.491E-20	4.965E-20	3.674E-20	2.542E-20	2.059E-20	1.691E-20	6.385E-21
9	5	6	3.468218E+01	6.394E-20	6.212E-20	1.042E-19	9.497E-20	8.586E-20	6.353E-20	4.396E-20	3.562E-20	2.925E-20	1.104E-20
8	7	6	3.468794E+01	3.045E-21	1.673E-21	1.644E-19	1.499E-19	1.355E-19	1.003E-19	6.938E-20	5.621E-20	4.616E-20	1.743E-20
				1.106E-19	1.074E-19								
				5.266E-21	2.893E-21								
				8.311E-21	4.566E-21								

NRSIMX= 6

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