

Rapid

Accurate

Non-destructive

Skyray Instrument Inc.
50 Braintree Hill Park, Suite 201,
Braintree, MA USA 02184
Tel: 617.202.3879 Fax: 781.519.4766
Website: www.skyrayinstrument.com



Precious Metal Analysis Expert

To detect precious metals such as Au, Ag, etc

EDX600

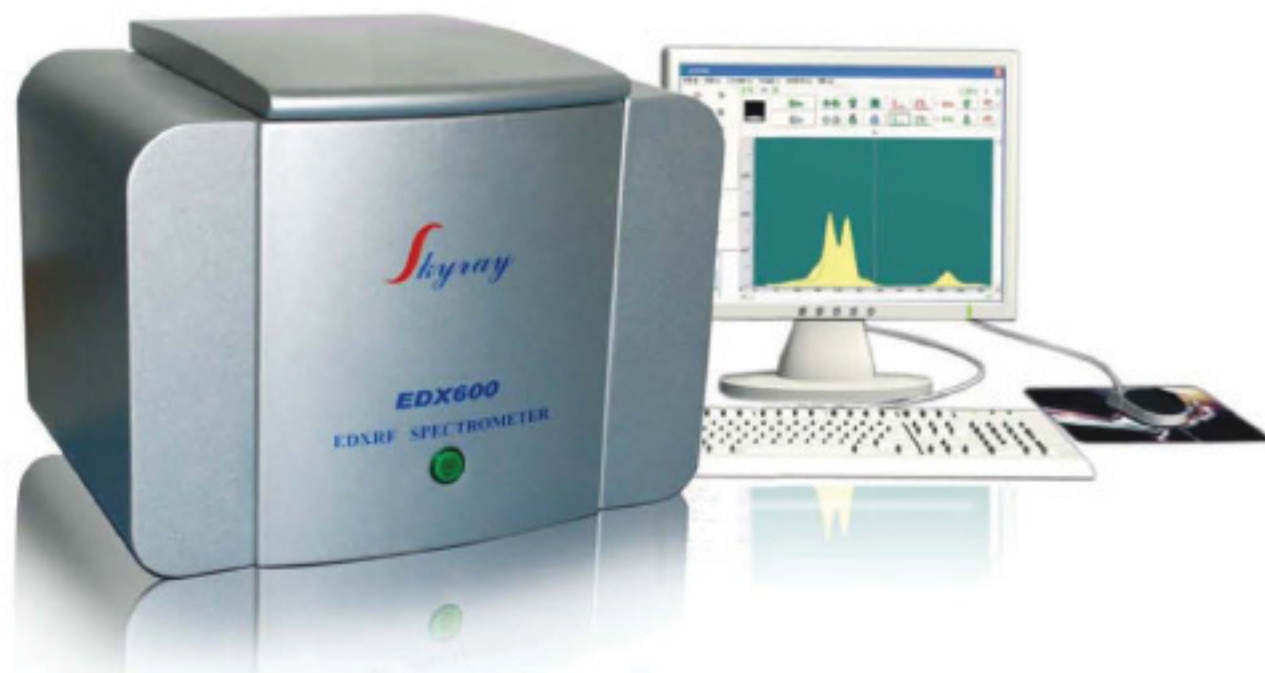
**X-ray Fluorescence
Spectrometer**

Skyray Instrument Inc.

—A professional manufacturer of
X-ray Fluorescence Spectrometers

Skyray Instrument Inc. spent 15 years of dedicated service on the development, production and sales of X-ray Fluorescence Spectrometers. The company owns the world's first-class expert team in field of X-ray fluorescence analytical technology, abundant fund, and unparalleled technology. It has 56 patent technologies. The products are widely used in precious metal analysis (Au, Ag, Pt, Pd, etc), electronic and electric industry, cement industry, steel industry, plating thickness measurement, commodity inspection, scientific study, RoHS detection and so on. At present, the company tops the World's No.1 in both Sales Amount and Product Categories.

EDX600 integrates the precious metal detection technology and experience Skyray Instrument has obtained in the past years, and features for its unique product configuration, fully functional software and user friendly interface. Its human-oriented design grants you a simple measurement job.



EDX600

| Rapid | Accurate | Non-destructive |

Specially designed for precious metal detection

Application fields:

Content detection of precious metals Au, Ag and all kinds of ornaments

Mainly used in precious metal and ornament processing industries; banks, ornament sale and detection institutes



Specifications

Measurable elements: Cu Au and Ag

Measurement accuracy: 0.5% (>96%)

Repeatability: 0.1%

Ambient temperature: 15°C-30°C

Ambient humidity: ≤70%

Test time: 60-100s

Power: AC 220V ± 5V (AC purified stabilized voltage power supply is suggested)

Configurations

Single sample chamber

Proportion arithometo

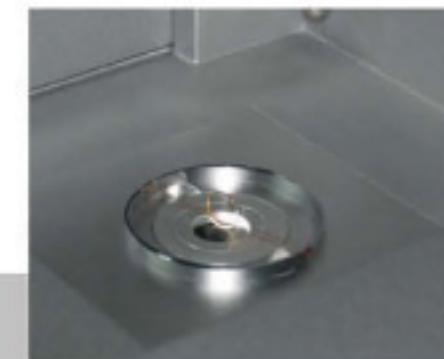
High resolution CCD

Amplifier circuit

High and low voltage power supplies

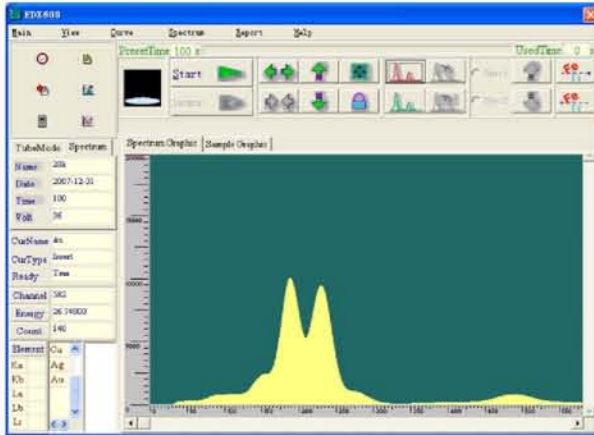
X-ray tube

PC and ink-jet printer



Sample chamber

Application Software



Element	content	Intensity	Weight
Cu	6.510	435.250	0.325
Ag	10.200	424.180	0.510
Au	83.290	6209.200	4.165

Karat Value: 19.991K

Clearer detection results

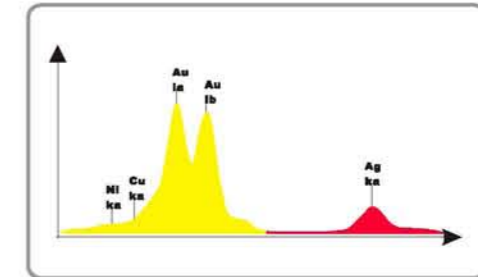


Auto report generation

Testing Report

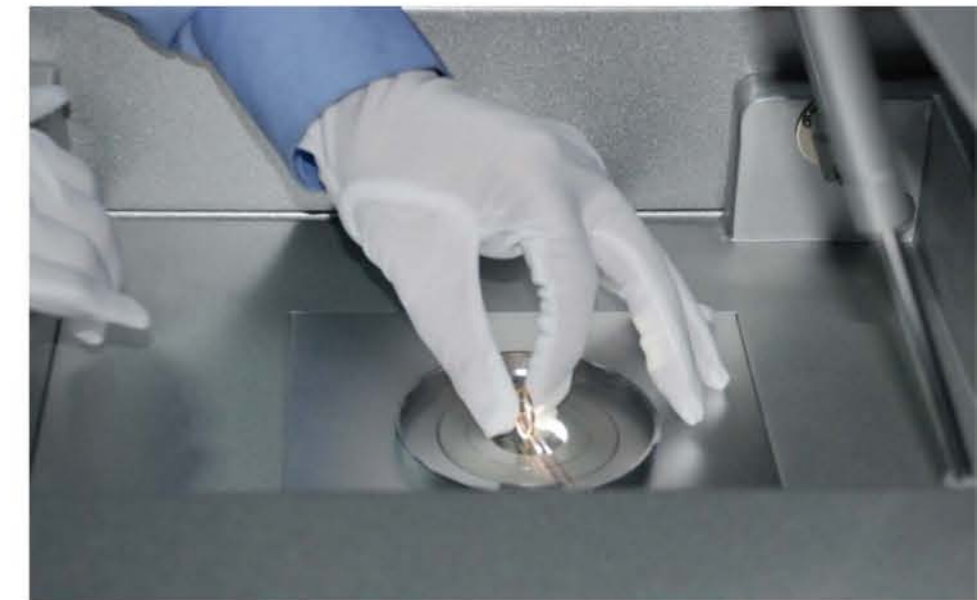
Sample Name	20k	Test Time	100	Test Date	2007-12-31
Element	Content(%)		Weight(g)		
Cu	6.51	0.325			
Ag	10.2	0.51			
Au	83.29	4.165			
Karat Value	19.991K				
Spectrum					
Sample Photo					
Remark					

Precious Metal Detection Example Spectrum



Test time: 100s

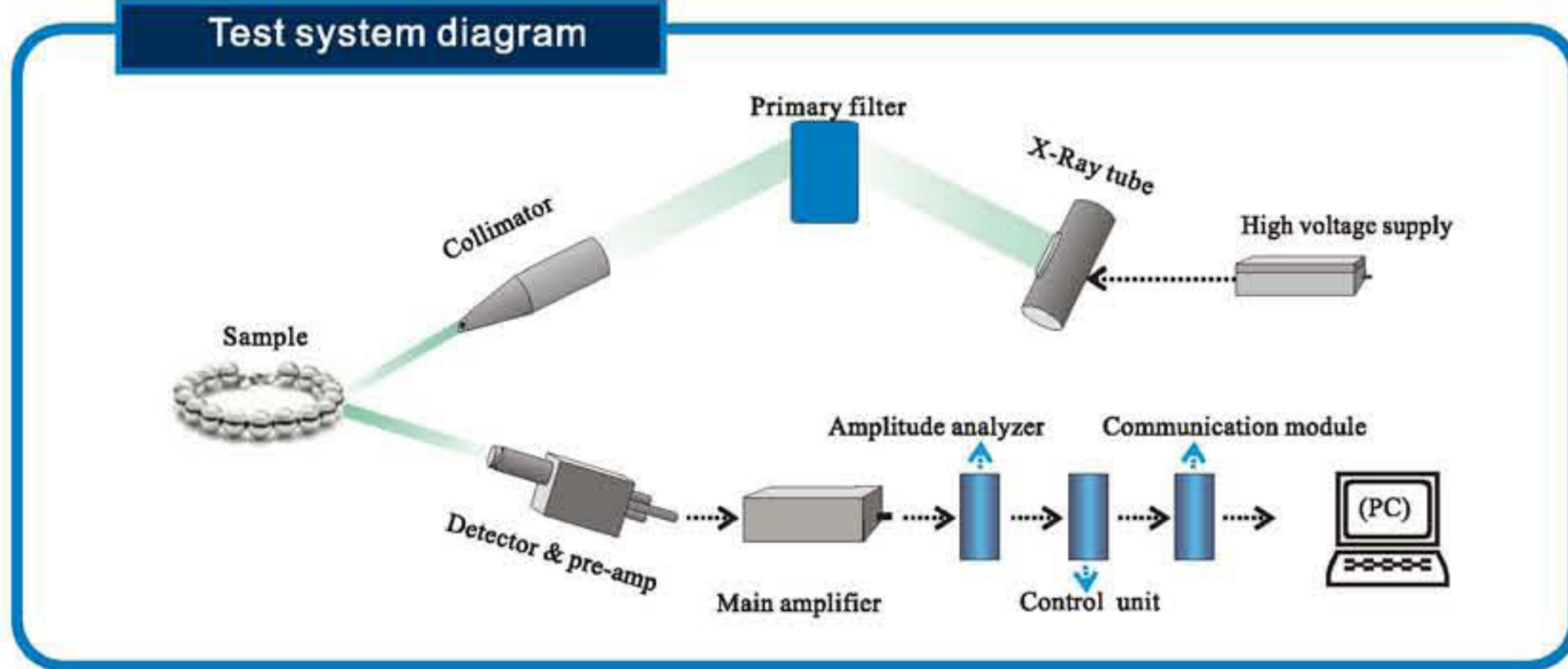
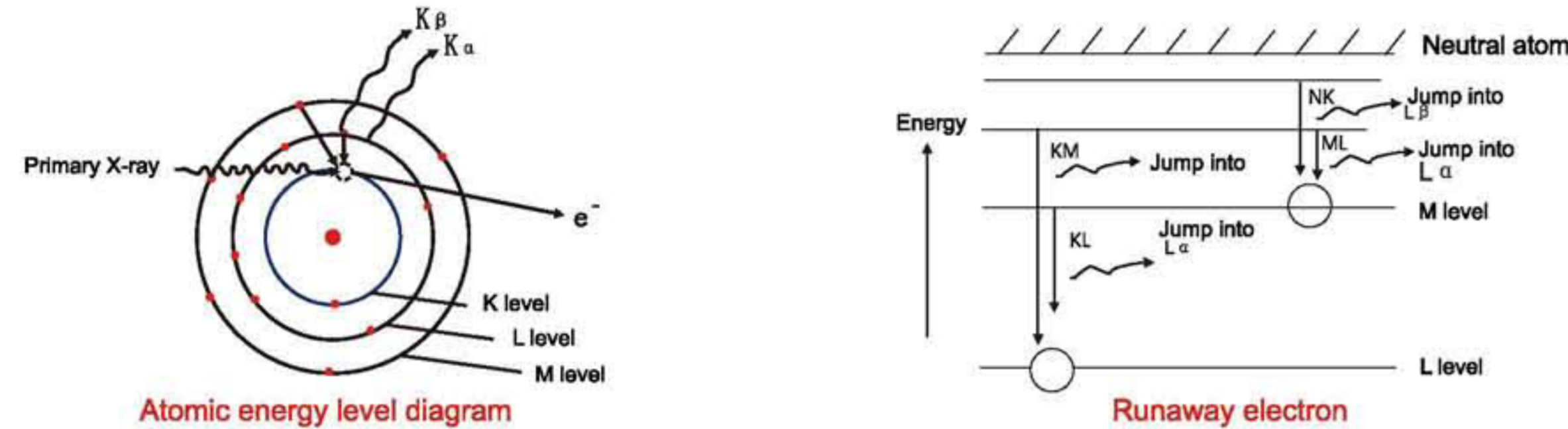
Elements	Content (%)
Cu	6.51
Au	10.2
Ag	83.29



Simple sample detection program

X-ray Fluorescence Excitation Principle

EDX600 uses X-ray beam from X-ray tube to irradiate the sample, and the element atoms will be excited and emit the secondary X-ray fluorescence characteristic for its own energy. Then these elements get identified and its content measured. The working principle is as follows:



Characteristic X-radiation of element

Each element will emit X-ray at its own energy level when excited. This X-ray is characteristic and called X-ray fluorescence. It is the foundation of analysis.

Scattering

It is the background of spectrum.

Photoelement

The photoelectron is the foundation of detector. In the sample, the X-ray intensity of every element is expressed as $I_1, I_2, I_3, I_4, I_5 \dots$ respectively. The element content C is the function of X-ray fluorescence intensity I , expressed as follows:

$$C = f(I_1, I_2, I_3, I_4, I_5 \dots)$$

This equation is too complicated and can be simplified as:

$$C = K_1 I_1 + K_2 I_2 + K_3 I_3 + K_4 I_4 + K_5 I_5 \dots$$

Where

C is the element content in the sample; $I_1, I_2, I_3, I_4, I_5 \dots$ are X-ray intensity of element respectively; $K_1, K_2, K_3, K_4, K_5 \dots$ are coefficients which can be determined by measuring known standard sample to calibrate.

PERIODIC TABLE OF ELEMENTS (Characteristic X-Ray energy table)

Par	IA											III A					IV A					V A					VI A					VII A					0																								
												5 B	6 C	7 N	8 O	9 F	10 Ne	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	21 Ga	22 Ge	23 As	24 Se	25 Br	26 Kr	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	41 In	42 Sn	43 Sb	44 Te	45 I	46 Xe	51 Tl	52 Pb	53 Bi	54 Po	55 At	56 Rn	71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po
1	H 1.008																																				2 He 4.008																								
2	3 Li 6.94	4 Be 9.012																																																											
3	11 Na 22.99	12 Mg 24.31																																																											
4	19 K 39.1	20 Ca 40.08	21 Sc 44.96	22 Ti 47.90	23 V 50.94	24 Cr 51.99	25 Mn 54.94	26 Fe 55.84	27 Co 58.93	28 Ni 58.7	29 Cu 63.54	30 Zn 65.38	31 Ga 69.72	32 Ge 72.5	33 As 74.92	34 Se 78.9	35 Br 79.90	36 Kr 83.8																																											
5	37 Rb 85.47	38 Sr 87.82	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc #(99)	44 Ru 101.0	45 Rh 102.9	46 Pd 106.4	47 Ag 107.9	48 Cd 112.4	49 In 114.8	50 Sn 118.6	51 Sb 121.7	52 Te 127.6	53 I 126.9	54 Xe 131.3																																											
6	55 Cs 137.3	56 Ba 137.3																																																											
7	87 Fr #(223)	88 Ra 226.0																																																											

■ Alkali Metals ■ Non-Metal ■ Transitional element
■ Halogen ■ Lanthanoids ■ Actinides
■ Alkaline earth ■ Rare gases ■ Main group metal

Mark 1: #Radioactive Elements *Man Made Elements
 2: All the Numbers are ordered one by one in this way, Atomic Number
 Element Symbol, Atomic Weight, $K\alpha$, $K\beta$, $L\alpha$, $L\beta$, $L\gamma$, $L\epsilon$

	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
Ln	138.9	140.1	140.9	144.2	#(147)	150.4	152.0	157.2	158.9	162.5	164.9	167.2	168.9	173.0	175.0
	33.30	34.57	35.86	37.19	38.54	39.91	41.32	42.76	44.23	45.73	47.26	48.82	50.41	52.04	53.59
	37.99	39.45	40.95	42.48	44.05	45.65	47.28	48.95	50.65	52.38	54.16	55.96	57.81	59.69	61.61
	4.651	4.840	5.034	5.230	5.431	5.636	5.846	6.059	6.275	6.495	6.720	6.948	7.181	7.414	7.654
	5.043	5.262	5.489	5.722	5.956	6.206	6.456	6.714	6.979	7.249	7.528	7.810	8.103	8.401	8.708
	5.789	6.052	6.322	6.602	6.891	7.180	7.478	7.778	8.104	8.418	8.748	9.089	9.424	9.779	10.14
4.124	4.287	4.452	4.632	4.816	4.994	5.176	5.361	5.546	5.742	5.942	6.152	6.341	6.544	6.752	
An	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm			
	227	232	231	238	237	244	243	247	247	251	252	257			
	89.79	92.19	94.64	97.14	99.69	102.3	104.9	107.7	110.5	113.3	116.2	119.2			
	103.3	106.1	108.9	111.8	114.7	117.7	120.8	123.9	127.1	130.4	133.7	137.2			
	12.65	12.97	13.29	13.61	13.95	14.28	14.62	14.96	15.31	15.66	16.02	16.38			
	15.71	16.2	16.7	17.22	17.74	18.28	18.83	19.39	19.97	20.56	21.17	21.79			
18.41	18.98	19.55	20.16	20.77	21.40	22.04	22.69	23.37	24.06	24.76	25.47				