Decay lab

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Period11

Introduction

Radioactive decay is a kind of change which happen on the nuclear, and in this process, this element will became another element because the charge with the atom will be decrease and have a totally change, then it will lose this charge and became another element. We know that Marie Curie was find this kind of element, they always became another element and will have radioactive to the air, because this gamma rays and conversion electrons will decay and get out of the air. By which a nuclear of an unstable atom loses energy by emitting radiation. A material that spontaneously emits such radiation. In that, according to middle theory, it is impossible to predict when a particular atom will decay. The chance that atom would decay never changes, that is, it does not matter how long the atom has existed.
There have so many different of decay of radioactive. A decay, or loss of energy from the the nucleus, results when an atom with one type of nucleus.
I will try to figure of this and have a research.

Question
Explain what's the relationship with the times of the decay period

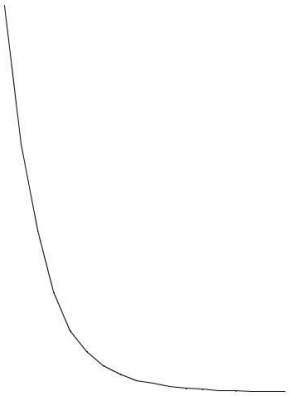
Apparatus
Computer and program about decay lab.

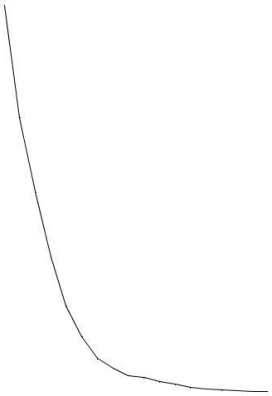
Instruction
Of cause I can 't just do the decay lab by the real way, because it was so away of me, it need so many stuff and the high school will not have it. But my teacher help me to create a program can calculate this decay lab it use the function and we can get the data with it
Step 1 choose some data in side and put in
Step 2 Wait for computer calculate
Step 3 we can get the data and just know what's going on with it.

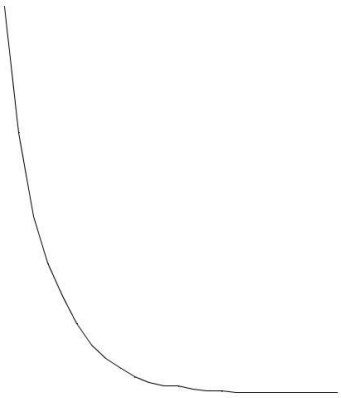
Data destruction

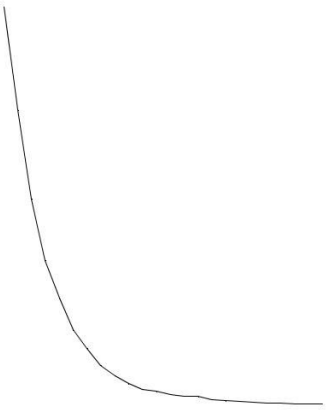
No.	initial number of atoms	probability of decay	time steps
1	1000	0.342	17
2	1000	0.321	17
3	1000	0.3	23
4	1000	0.279	23
5	1000	0.258	34

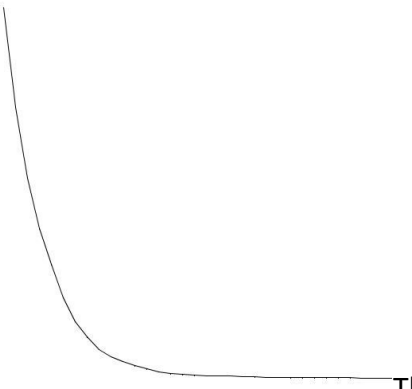
6	1000	0. 247	20
7	1000	0. 226	26
8	1000	0, 205	27
9	1000	0. 184	34
10	1000	0. 163	35
11	1000	0. 142	41







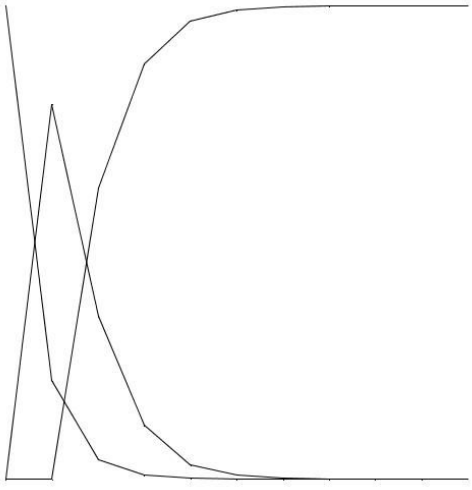


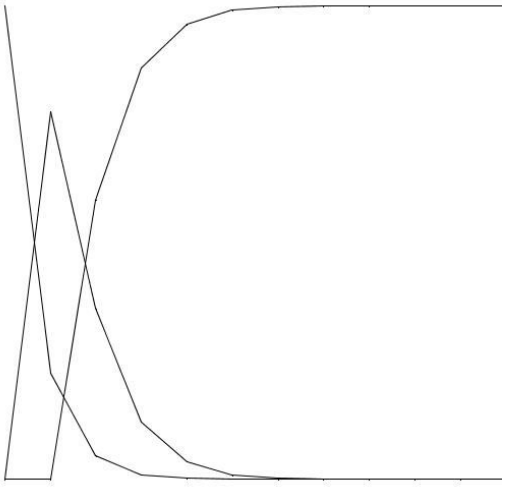


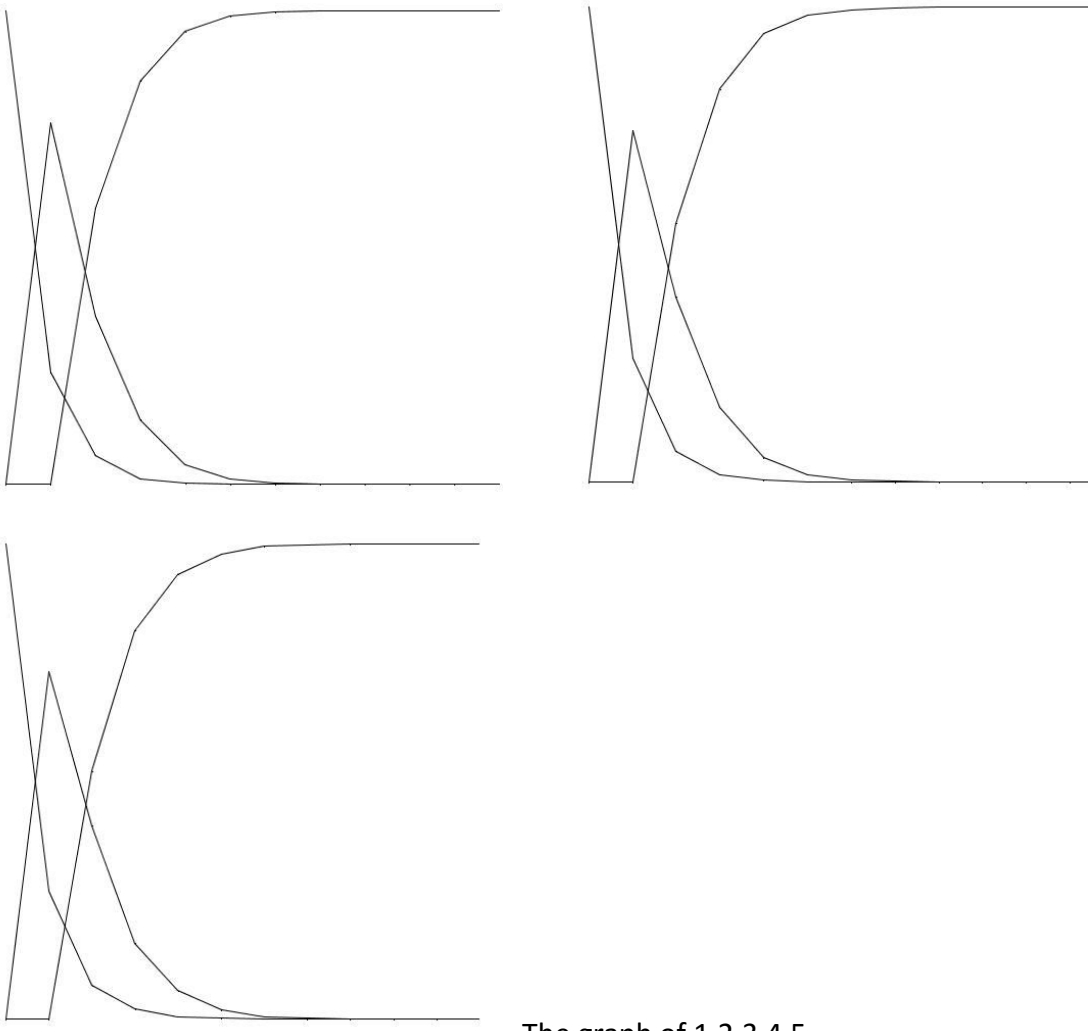
The graph of 1,2,3,4,5.

As we see the data have a inverse ratio in this data, and for the time and the decay ‘s situation is same. At first we saw it have the probility of the decay and it’s the number lower then zero. As we know, nuclear transmutation is the charge changing , and it became slow because it will became stable and stable. And the probability of the decay show the happenting with the data--- inverse ratio.

No.	initial number of atoms	probability of decay A-B	probability of decay B-C	time steps
1	10000	0.7899	0.7799	10
2	10000	0.7788	0.7688	11
3	10000	0.7677	0.7577	11
4	10000	0.7566	0.7466	9
5	10000	0.7455	0.7355	14
6	10000	0.7344	0.7244	11
7	10000	0.7233	0.7133	11
8	10000	0.7122	0.7022	10
9	10000	0.7011	0.6911	10
10	10000	0.69	0.68	12
11	10000	0.6899	0.6799	11







The graph of 1,2,3,4,5.

But on the other hand the situation of the eletric distent was very stable, as we see, the data of the charge between A and B and C became very well and have a stable ratio and it always 10 or 11, that's means it was have very samely time steps of the track of charge.

Function

$$c = \frac{\lambda}{N_0}.$$

nuclear transmutation

$$N = N_0 e^{-\lambda t},$$

population formula

$$T_{1/2} = \frac{\ln 2}{\lambda_c} = \frac{\ln 2}{\lambda_1 + \lambda_2}.$$

Conclution

We can saw the time step is have a decrease ratio with the probility of the decay, but for the different decay way is same.

Bibligraphy

Wikipedia. Wikimedia Foundation, n.d. Web. 22 Feb. 2016.
Radioactivity. Gsu, n.d. Web.

The program showing

```
C:\Users\simon\DSM>
C:\Users\simon\DSM>Java Nuclear
input N, the initial number of atoms.
1000
input P, the probability of decay.
0.342
1000 641 417 258 158 104 68 45 29 22 14 9 6 3 2 1 1 0
The number of time steps was 17

C:\Users\simon\DSM>
C:\Users\simon\DSM>Java Nuclear
input N, the initial number of atoms.
1000
input P, the probability of decay.
0.321
1000 710 518 349 222 143 86 61 42 36 26 19 11 7 4 3 1 0
The number of time steps was 17

C:\Users\simon\DSM>Java Nuclear
input N, the initial number of atoms.
1000
input P, the probability of decay.
0.3
1000 674 457 335 250 179 124 89 64 41 27 18 17 10 5 4 1 1 1 1 1 1 1 0
The number of time steps was 23

C:\Users\simon\DSM>Java Nuclear
input N, the initial number of atoms.
1000
input P, the probability of decay.
0.279
1000 741 517 362 266 187 141 98 72 52 38 32 25 20 19 12 9 7 5 3 3 1 1 0
The number of time steps was 23
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```
C:\Users\simon\DSM>Java Nuclear
input N, the initial number of atoms.
1000
input P, the probability of decay.
0.258
1000 732 540 404 307 218 154 112 78 59 46 34 26 18 13 11 9 7 7 7 5 4 3 3 2 2 2 2 2 2 1 1 1 1 0
The number of time steps was 34

C:\Users\simon\DSM>
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