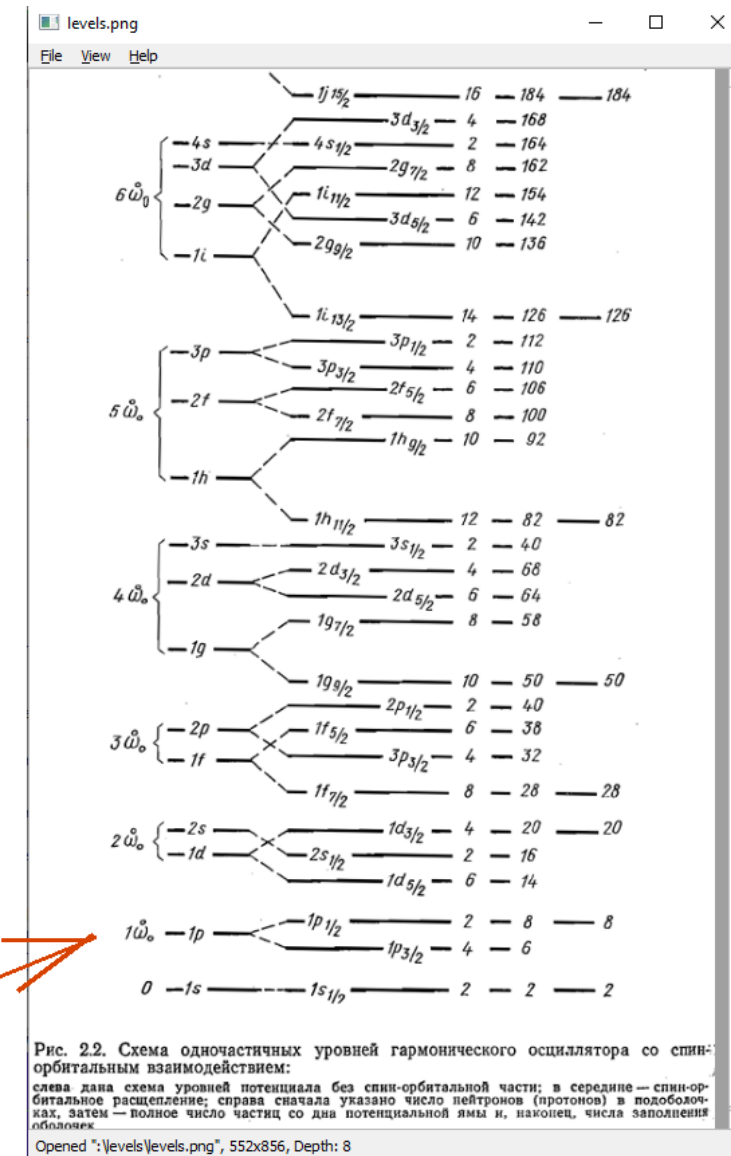
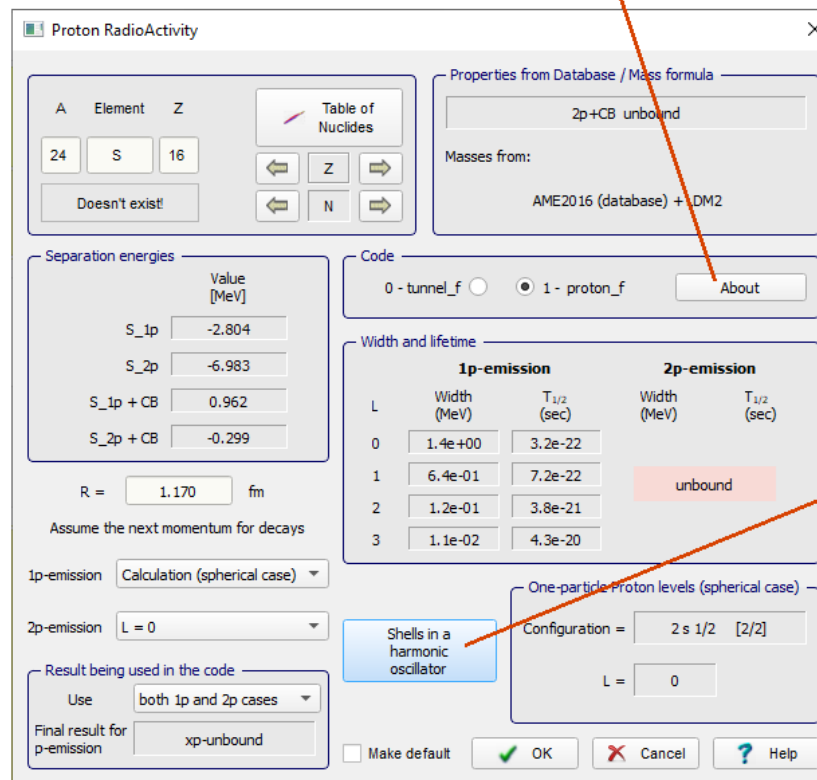
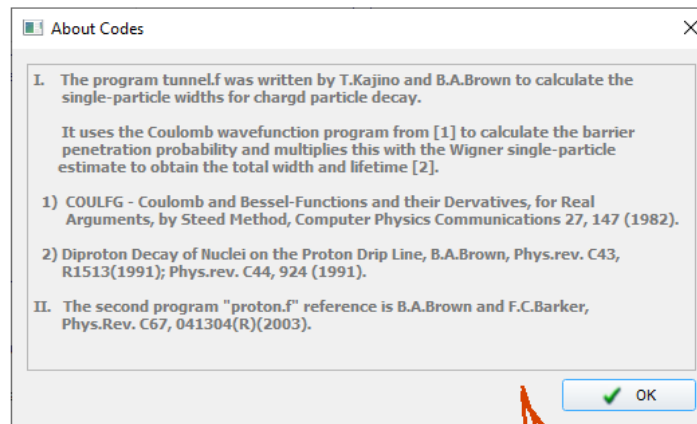


//-----  
 // 14.3.18 04/10/20  
 // \* d\_Proton\_radioactivity dialog (CN0-type): DONE!  
 // \* w\_ImageViewer (utility to view LISE[and others] images): DONE!  
 // \* d\_Profile\_custom dialog: 90% connection



// 14.3.19 04/11/20

// \* d\_Alpha\_decay dialog (CN0-type): DONE!

// \* all L\_Mass/\*. \* files have been updated according to current LISE Borland version 13.4.4

// previous files were originally from v.10.0

// \* broken action links in MainWindow, d\_Proton\_Radioactivity have been corrected

// \* The problem "Could not parse application stylesheet" was solved

// \* PushButton >> global style and style for ShowSetup (left panel) have been changed

// \* subsymbols in the case of molecular compound (ShowSetup/LeftPanel) & Thickness dialogs

// messages below exist for all porjects, and caused by troubles with videodrivers

// \* onecore\windows\directx\database\helperlibrary\lib\directxdatabasequeryimpl.cpp(67)\d3d9.dll!64709D62:

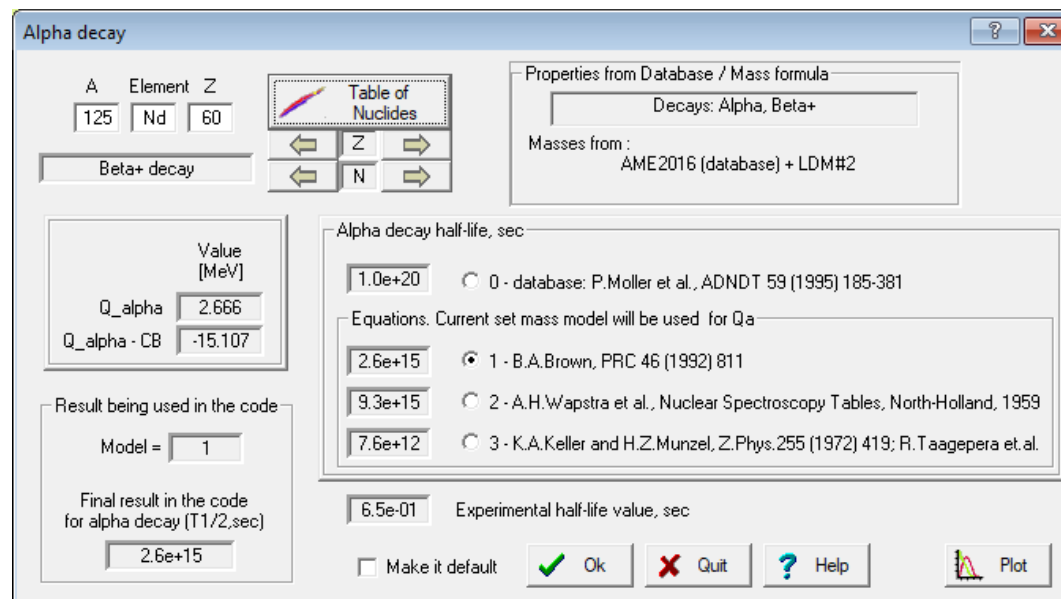
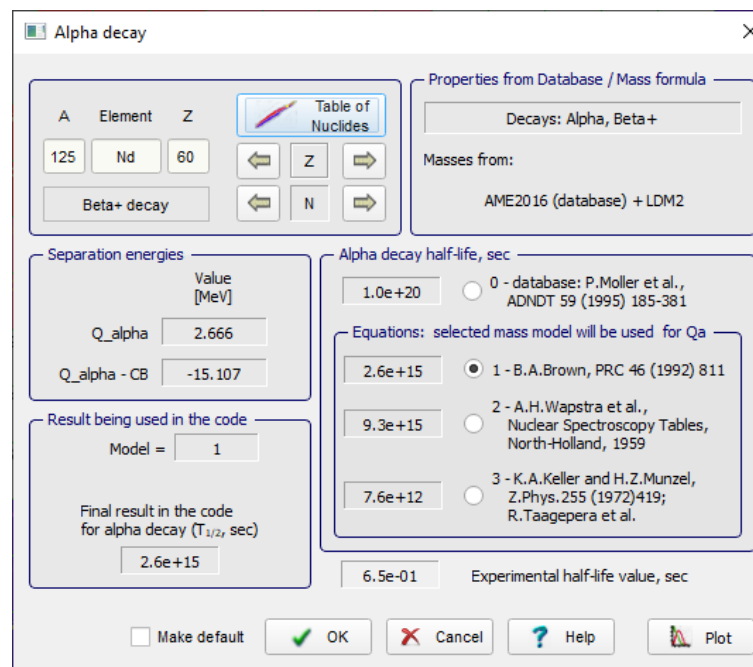
// (caller: 64709F56) ReturnHr(1) tid(3ea0) 80004002 No such interface supported

// <https://software.intel.com/en-us/forums/media/topic/814777>

now values are the same in AlphaDecay dialog.

initially was difference cause of different versions of L\_mass/\*. files

Qt



Borland

//-----  
 // 14.3.20 04/12/20  
 // \* d\_Profile\_custom dialog: 95% connection (requires more benchmarks)  
 // \* d\_ClusterRadioactivity dialog: DONE!

Cluster RadioActivity
✕

A Element Z

228 Th 90

Alpha decay

Table of Nuclides

← Z →

← N →

Masses from:

AME2016 (database) + LDM2

Code

0 - "tunnel"  1 - "proton"

About

Cluster (Lighter product)

<sup>20</sup>O Choose

Residue (Heavier product)

<sup>208</sup>Pb

Separation energies et al.

Excitation energy 0 MeV

Q<sub>cluster</sub> 44.72 MeV

Q<sub>cluster</sub> - CB -32.29 MeV

R 1.025 fm

Lifetime

cluster emission @ L=0

Lg[ T<sub>1/2</sub> (sec)]

20.85

Make default

OK

Cancel

Help

PHYSICAL REVIEW C 79, 064616 (2009)

| Parent | Cluster          | R                     | Expt.   |
|--------|------------------|-----------------------|---|
|        |                  | 1. proton_f in LISE++ | Half-lives log <sub>10</sub> T <sub>1/2</sub> |
| 222Ra  | <sup>14</sup> C  | <b>1.0475</b>         | 11.01   |
| 226Th  | <sup>18</sup> O  | <b>1.075</b>          | > 15.3  |
| 228Th  | <sup>20</sup> O  | <b>1.025</b>          | 20.87   |
| 231Pa  | <sup>23</sup> F  | <b>1.00</b>           | > 24.61                                       |
| 230U   | <sup>22</sup> Ne | <b>1.04</b>           | > 18.2  |
| 232U   | <sup>24</sup> Ne | <b>0.99</b>           | 21.05   |
| 234U   | <sup>26</sup> Ne | <b>1.01</b>           | 25.06   |
| 236Pu  | <sup>28</sup> Mg | <b>0.981</b>          | 21.67   |
| 238Pu  | <sup>30</sup> Mg | <b>0.986</b>          | 25.70   |
| 242Cm  | <sup>34</sup> Si | <b>0.981</b>          | 23.24   |

//-----  
 // 14.3.21 04/14/20  
 // \* **d\_Profile\_custom** dialog: **DONE!**  
 // \* **d\_Spontaneous\_fission** dialog: **DONE!**  
 // \* 3 dialogs -- **d\_Dipole\_magnetic**, **d\_D6**, **d\_GNS** : re-design 100%  
 // \* **Disperse Optical block base classes** dialogs :  
 // -- **d\_Block\_base** (Optical block properties): connection 60%  
 // -- **d\_Dipole\_base** : connection 20%

| N  | X (mm) | Y-old (mm)   | Y-new (mm)   | dY (mm)       |
|----|--------|--------------|--------------|---------------|
| 1  | -93.75 | 1.25838e+000 | 1.25842e+000 | -3.11560e-005 |
| 2  | -84.38 | 1.25254e+000 | 1.25255e+000 | -6.64343e-006 |
| 3  | -75.00 | 1.24670e+000 | 1.24669e+000 | +1.12949e-005 |
| 4  | -65.62 | 1.24086e+000 | 1.24083e+000 | +2.26601e-005 |
| 5  | -56.25 | 1.23501e+000 | 1.23498e+000 | +2.74534e-005 |
| 6  | -46.88 | 1.22917e+000 | 1.22914e+000 | +2.56757e-005 |
| 7  | -37.50 | 1.22333e+000 | 1.22331e+000 | +1.73283e-005 |
| 8  | -28.12 | 1.21748e+000 | 1.21748e+000 | +2.41222e-006 |
| 9  | -18.75 | 1.21164e+000 | 1.21166e+000 | -1.90715e-005 |
| 10 | -9.38  | 1.20581e+000 | 1.20584e+000 | -3.19298e-005 |
| 11 | 0.00   | 1.20000e+000 | 1.20004e+000 | -3.61898e-005 |
| 12 | 9.38   | 1.19420e+000 | 1.19423e+000 | -3.18656e-005 |
| 13 | 18.75  | 1.18842e+000 | 1.18844e+000 | -1.89718e-005 |
| 14 | 28.12  | 1.18265e+000 | 1.18265e+000 | +2.46589e-006 |
| 15 | 37.50  | 1.17689e+000 | 1.17687e+000 | +1.73426e-005 |
| 16 | 46.88  | 1.17112e+000 | 1.17109e+000 | +2.56596e-005 |
| 17 | 56.25  | 1.16535e+000 | 1.16532e+000 | +2.74178e-005 |
| 18 | 65.62  | 1.15958e+000 | 1.15956e+000 | +2.26184e-005 |
| 19 | 75.00  | 1.15382e+000 | 1.15381e+000 | +1.12624e-005 |
| 20 | 84.38  | 1.14805e+000 | 1.14806e+000 | -6.64890e-006 |
| 21 | 93.75  | 1.14228e+000 | 1.14231e+000 | -3.11145e-005 |

//-----  
 // 14.3.21 04/14/20  
 // \* d\_Profile\_custom dialog: DONE!  
 // \* d\_Spontaneous\_fission dialog: DONE!  
 // \* 3 dialogs -- d\_Dipole\_magnetic, d\_D6, d\_GNS : re-design 100%  
 // \* Disperse Optical block base classes dialogs :  
 // -- d\_Block\_base (Optical block properties): connection 60%  
 // -- d\_Dipole\_base : connection 20%

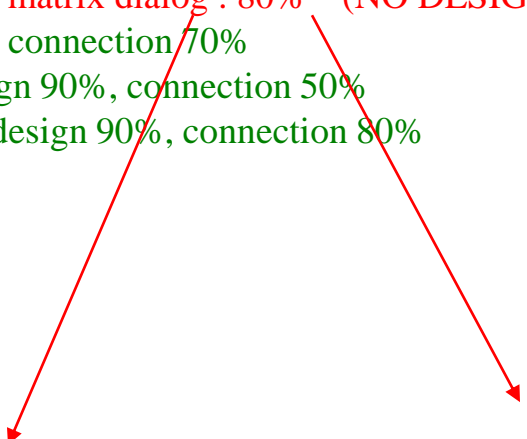
The 'Dialog' window is divided into several sections:

- Dispersive block (M-dipole):** Includes 'Strength' with radio buttons for Brho (0.00), B (0.00), and I (0.00), and 'Bend Sector' with fields for Radius (3 m), Angle (45 deg), and Length (12.1 m).
- Optical block properties and data:** Contains 'Section-Element construction property' with 'S-block (Section)' selected, 'Setting Charge state for the Block (Z-q)' set to 0, 'Tweak' at 0.100%, and 'Calculate Values using' options for Target and D2.
- Matrix calculation:** Includes 'Matrix calculations' and an option to 'Allow remote matrices calculations'.

The 'Spontaneous fission' dialog window displays the following information:

- Table of Nuclides:** A=260, Element=No, Z=102. Spontaneous fission is selected.
- Properties from Database / Mass formula:** Decays: Alpha. Masses from: AME2016 (database) + LDM2.
- Separation energies:** Z<sup>2</sup>/A = 40.0. Value [MeV] = 260.18. Fission barrier = 1.81.
- Spontaneous Fission half-life, sec : Calculation:** \*\* Z.Ren .C.Xu, Nuclear Physics A 759 (2005) 64-78. Options include Formula 1, 2, 3-1, 3-2, and 'Maximum value of all above formulas (recommended)'. A.Karpov & V.Zagrebaev, IJMP E 21 (2012) 1250013 is also listed.
- Result being used in the code:** Model = Max. Final result in the code for Spontaneous fission: T<sub>1/2</sub>, sec = 4.1e+01, lg(T<sub>1/2</sub>/yr) = -5.89.
- Isotope experiment half-life value:** 1.1e-01 sec ← T<sub>1/2</sub> value → lg(T<sub>1/2</sub>/yr) = -8.47.

- //-----
- // **14.3.22 04/15/20**
  - // \* **Development of base class of the matrix dialog : 80% (NO DESIGNER!)**
  - // \* **d\_Drift dialog : re-design 100%, connection 70%**
  - // \* **d\_Quad\_electric dialog : re-design 90%, connection 50%**
  - // \* **d\_Quad\_effLength dialog : re-design 90%, connection 80%**



Experimental Settings    Physics Models    Calculations

- Projectile
- Target
- Stripper after Target
- Spectrometer Design
- Optics
- Gamma registration

---

- Setting Fragment
- Tune spectrometer for the primary beam
- d\_Matrix\_base**
- d\_CN0\_base\_exec
- d\_CN0\_exec
- d\_CN0\_show
- d\_CN1\_base\_exec
- d\_CN1\_call
- d\_CN2\_exec
- d\_CN2\_show

D1
?
×

**Local block matrix**

|      |          |          |         |         |       |          |        |
|------|----------|----------|---------|---------|-------|----------|--------|
| 1. X | -2.28459 | 0.009    | 0       | 0       | 0     | 29.2533  | [mm]   |
| 2. T | 1.06245  | -0.44189 | 0       | 0       | 0     | -0.00283 | [mrad] |
| 3. Y | 0        | 0        | 0.73853 | 0.0022  | 0     | 0        | [mm]   |
| 4. P | 0        | 0        | 3.74271 | 1.36526 | 0     | 0        | [mrad] |
| 5. L | 3.10738  | -1.2927  | 0       | 0       | 1     | 5.7769   | [mm]   |
| 6. D | 0        | 0        | 0       | 0       | 0     | 1        | [%]    |
|      | /[mm]    | /[mrad]  | /[mm]   | /[mrad] | /[mm] | /[%]     |        |

Det= 1.000

**Global block matrix**

|      |          |          |         |         |       |          |        |
|------|----------|----------|---------|---------|-------|----------|--------|
| 1. X | -2.28459 | 0.009    | 0       | 0       | 0     | 29.2533  | [cm]   |
| 2. T | 1.06245  | -0.44189 | 0       | 0       | 0     | -0.00283 | [mrad] |
| 3. Y | 0        | 0        | 0.73853 | 0.0022  | 0     | 0        | [cm]   |
| 4. P | 0        | 0        | 3.74271 | 1.36526 | 0     | 0        | [mrad] |
| 5. L | 3.10738  | -1.2927  | 0       | 0       | 1     | 5.7769   | [cm]   |
| 6. D | 0        | 0        | 0       | 0       | 0     | 1        | [%]    |
|      | /[cm]    | /[mrad]  | /[cm]   | /[mrad] | /[cm] | /[%]     |        |

Det= 1.000

- //-----
- // 14.3.22 04/15/20
  - // \* Development of base class of the matrix dialog : 80% (NO DESIGNER!)
  - // \* d\_Drift dialog : re-design 100%, connection 70%
  - // \* d\_Quad\_electric dialog : re-design 90%, connection 50%
  - // \* d\_Quad\_effLength dialog : re-design 90%, connection 80%

//-----

// **14.3.23 04/16/20**

// \* Development of **base class of the matrix dialog : DONE!**

// all operations are done as read, load, save, write, show, etc

// \* "d\_Calculator\_matrix" dialog : DONE!

// \* new small dialog "d\_Value\_input": DONE!

// \* d\_Multipole dialog: re-design 80%, connection 20%

- Physical Calculator
- Kinematic Calculator
- Mathematical Calculator
- Units Converter
- Evaporation Calculator
- Fusion-Residue Calculator
- Initial Fissile Nuclei analyzer
- Radiation residue Calculator
- Matrix Calculator**
- Ion Mass Calculator
- Estimated error of mean

**Matrix coefficient**

Input matrix coefficient value

**Matrix calculator**

Dimension =       Determinant =

|   | 1  | 2  | 3  | 4  | 5   | 6  |
|---|--|--|--|--|---|--|
| 1 | <input style="width: 40px;" type="text" value="-4.46467"/> | <input style="width: 40px;" type="text" value="1.52773"/>  | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/> | <input style="width: 40px;" type="text" value="9.06212"/>  |
| 2 | <input style="width: 40px;" type="text" value="-0.05485"/> | <input style="width: 40px;" type="text" value="-0.20521"/> | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/> | <input style="width: 40px;" type="text" value="7.07107"/>  |
| 3 | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="-2.50513"/> | <input style="width: 40px;" type="text" value="-0.79671"/> | <input style="width: 40px;" type="text" value="0"/> | <input style="width: 40px;" type="text" value="0"/>        |
| 4 | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="-1.25686"/> | <input style="width: 40px;" type="text" value="-0.7989"/>  | <input style="width: 40px;" type="text" value="0"/> | <input style="width: 40px;" type="text" value="0"/>        |
| 5 | <input style="width: 40px;" type="text" value="3.1073"/>   | <input style="width: 40px;" type="text" value="-1.26624"/> | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="1"/> | <input style="width: 40px;" type="text" value="-2.42233"/> |
| 6 | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/>        | <input style="width: 40px;" type="text" value="0"/> | <input style="width: 40px;" type="text" value="1"/>        |

Inverse

Up triangular

Load from file

Transpose

Down triangular

Save to file

$\leftrightarrow M$

$+ M$

$\times \text{coef}$

$[1]$

Undo

$\times M$

$- M$

$/ \text{coef}$

$[0]$

Quit





# LISE porting folder

https://onedrive.live.com/?id=64DECE36D26B3F3F1179594&cid=64DECE36D26B3F3F



+ New Upload Share Download Move to Copy to Rename Create album from folder Embed

Sort

My files > \_LISEcute > Versions



LISEcute\_03\_23\_3PM.zip  
Mar 25



LISEcute\_03\_24\_3AM.zip  
Mar 25



LISEcute\_03\_25\_2AM.zip  
Mar 25



LISEcute\_03\_25\_4AM.zip  
Mar 25



LISEcute\_03\_26\_2AM.zip  
Mar 26



LISEcute\_03\_27\_4AM.zip  
Mar 27



LISEcute\_03\_28\_3AM.zip  
Mar 28



LISEcute\_03\_29\_6AM.zip  
Mar 29



LISEcute\_03\_30\_3AM.zip  
Mar 30



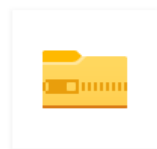
LISEcute\_03\_31\_1AM.zip  
Mar 31



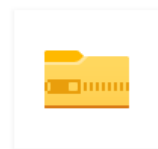
LISEcute\_04\_01\_6AM.zip  
Apr 1



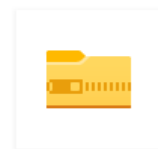
LISEcute\_04\_02\_2AM.zip  
Apr 2



LISEcute\_04\_03\_6AM.zip  
Apr 3



LISEcute\_04\_04\_2AM.zip  
Apr 4



LISEcute\_04\_05\_3AM.zip  
Apr 5



LISEcute\_04\_06\_3AM.zip  
Apr 6



LISEcute\_04\_07\_5AM.zip  
Apr 7



LISEcute\_04\_08\_1AM.zip  
Apr 8



LISEcute\_04\_09\_3AM.zip  
Apr 9



LISEcute\_04\_10\_3AM.zip  
Fri at 3:05 AM



LISEcute\_04\_11\_5AM.zip  
Sat at 5:21 AM



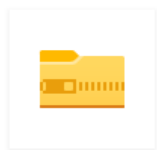
LISEcute\_04\_12\_4AM.zip  
Sun at 4:15 AM



LISEcute\_04\_14\_4AM.zip  
Tue at 4:10 AM



LISEcute\_04\_15\_3AM.zip  
Yesterday at 2:46 AM



LISEcute\_04\_16\_4AM.zip  
Just now

