DE LA RECHERCHE À L'INDUSTRIE

CURRENT STATUS ON THE GALILÉE-1 NUCLEAR DATA PROCESSING CODE

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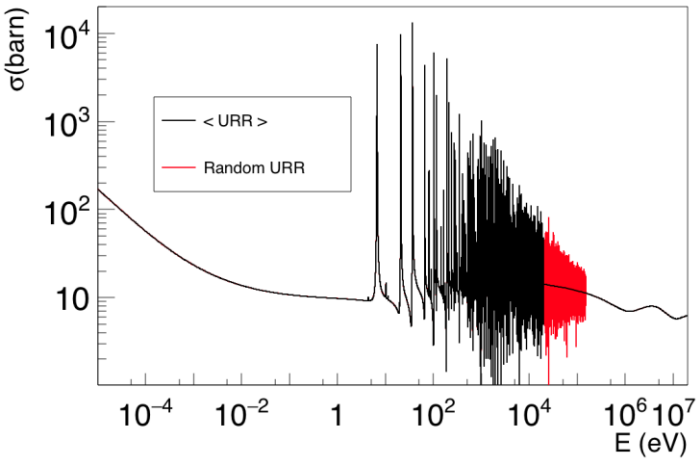
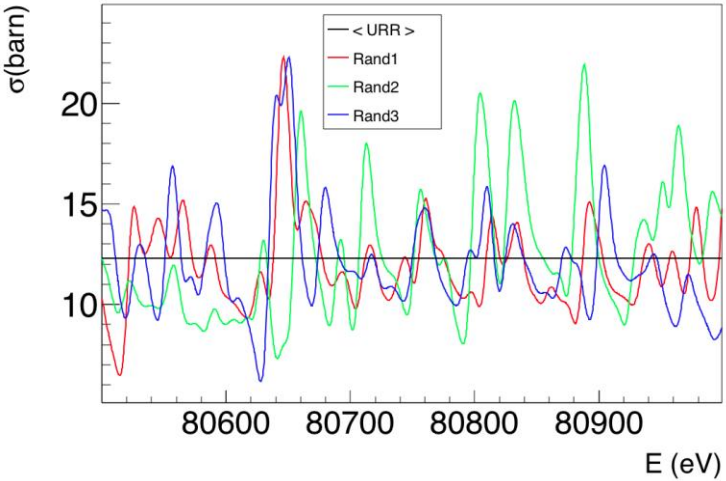
Reconstruction of a random pointwise cross section on the URR

U238: Energy grid for pointwise RRR + average URR : 160 000 pts
U238: Energy grid for pointwise RRR + pointwise URR : 630 000 pts

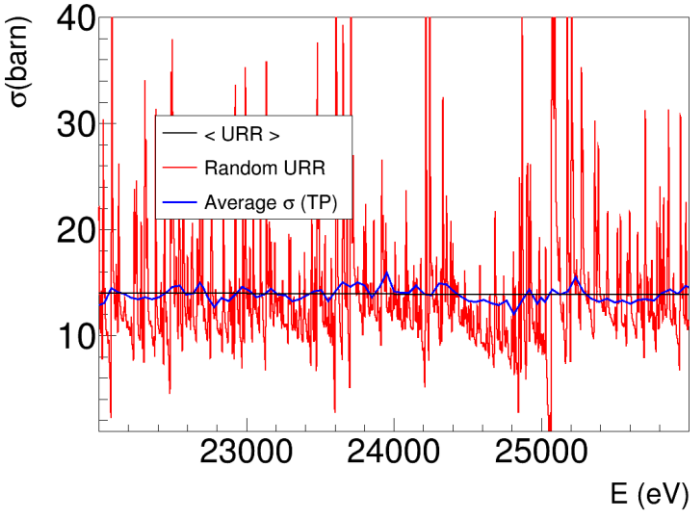
→ Multigroup PT (CALENDF-like)
→ Pointwise PT (NJOY/PURR-like)

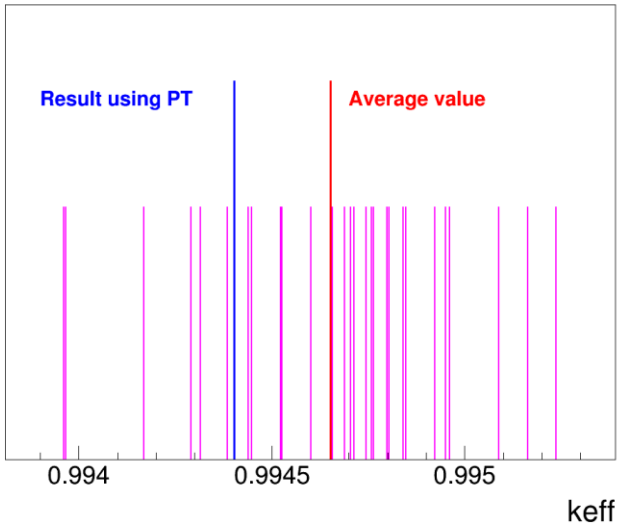




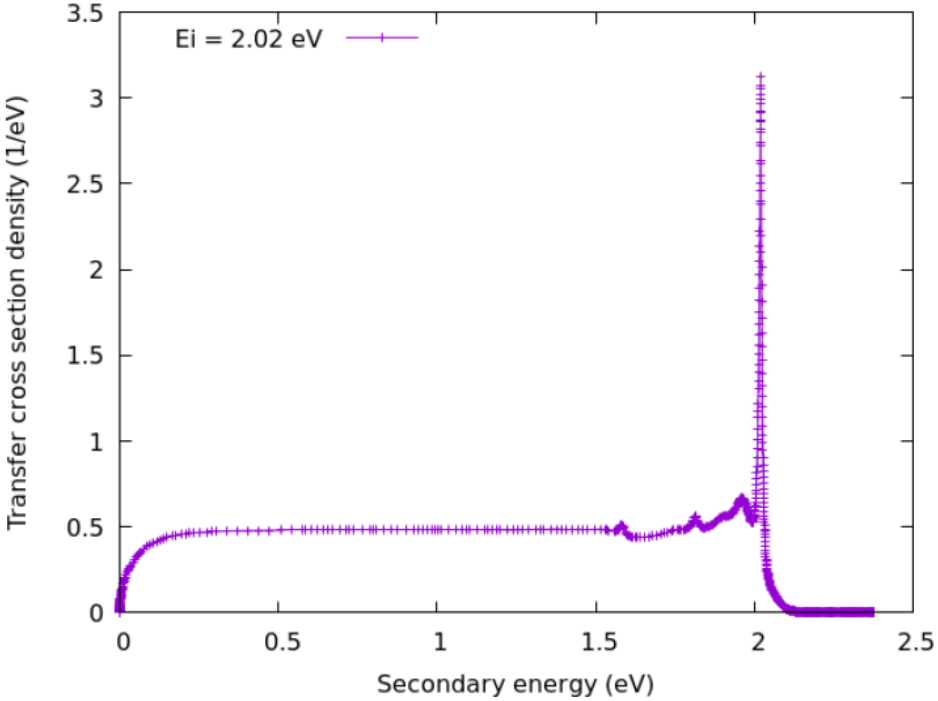
Example : 30 random URR Files used to produce multigroup PT
(980 groups from 20 keV to 149 keV)

Application to criticality benchmark (BigTen-2Z + T4)
Impact of PT : 450 pcm





Secondary energy-angle distributions



GALION Module of GALILEE :

- read/write (ENDF/PENDF) : done
- read/write GNDS (xml files)

XML Files :

Read Cross section (MF3) : done

Read Resonance parameters : in progress

Read Angular data : future step

Question : types of file to consider ? Json, xml, … ?

General transport type: background (p 176)
The background gives the background cross sections that have to be added to the resonance parameters to obtain the full set of cross sections.
Specifications for background
Node name: background
Attributes: This element has no attributes
Child nodes: The list of additional allowed child nodes is:
resolvedRegion: [optional, must appear one time] The background cross section in the resolved resonance region.
unresolvedRegion: [optional, must appear one time] The background cross section in the unresolved resonance region.
fastRegion: [optional, must appear one time] The cross section in the fast region beyond the resolved and unresolved resonance region.

ELASTIC SCATTERING U235

```
<reaction label="n + U235" ENDF_MT="2">
  <crossSection>
    <resonancesWithBackground label="eval">
      <resonances href="/reactionSuite/resonances"/>
      <background>
        <resolvedRegion>
          <XYs1d>
            <axes>
              <axis index="1" label="energy_in" unit="eV"/>
              <axis index="0" label="crossSection" unit="b"/></axes>
            <values>
              1.00000000e-05 0.00000000e+00 2.25000000e+03 0.00000000e+00</values></XYs1d></resolvedRegion>
        <fastRegion>
          <XYs1d>
            <axes>
              <axis index="1" label="energy_in" unit="eV"/>
              <axis index="0" label="crossSection" unit="b"/></axes>
            <values>
              2.25000000e+03 1.24097300e+01 2.37000000e+03 1.24689000e+01 2.65000000e+03 1.2360300
```

```
<nuclide id="U235">
        <mass>
          <double label="eval" value="235.043940257" unit="amu"/></mass>
        <charge>
          <integer label="eval" value="0" unit="e"/></charge>
        <nucleus id="u235" index="0">
          <spin>
            <fraction label="eval" value="7/2" unit="hbar"/></spin>
          <charge>
            <integer label="eval" value="92" unit="e"/></charge>
          <energy>
            <double label="eval" value="0.0" unit="eV"/></energy></nucleus></nuclide>
```

Atomic charge

Nucleus charge

Nucleus charge redundant with Z ?

THANK YOU FOR YOUR ATTENTION