OKTAVIAN neutron leakage spectra calculations with JENDL-5*

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March 7, 2025

Neutron leakage spectra measured at the OKTAVIAN facility are calculated with JENDL-5. The employed numerical procedure is as follows:

- Medium-wise 249-group cross sections are calculated from the ACE-formatted files with FRENDY.
- 249-group neutron transport calculations with the discrete-ordinate module `SNR` of the reactor physics code system CBZ for one-dimensional sphere model.

Comparisons in the leakage spectra between the calculated and measured values and the corresponding C/E values are shown in **Figs. 1** to **5** for 13 systems. In the paper by Konno et al.[1], results for eight of them are presented. Our results except the Co-59 system agree with those by Konno et al. On the Co-59 system, our calculation result obtained with ENDF/B-VII.0 agree well with the result obtained by van der Marck[2].

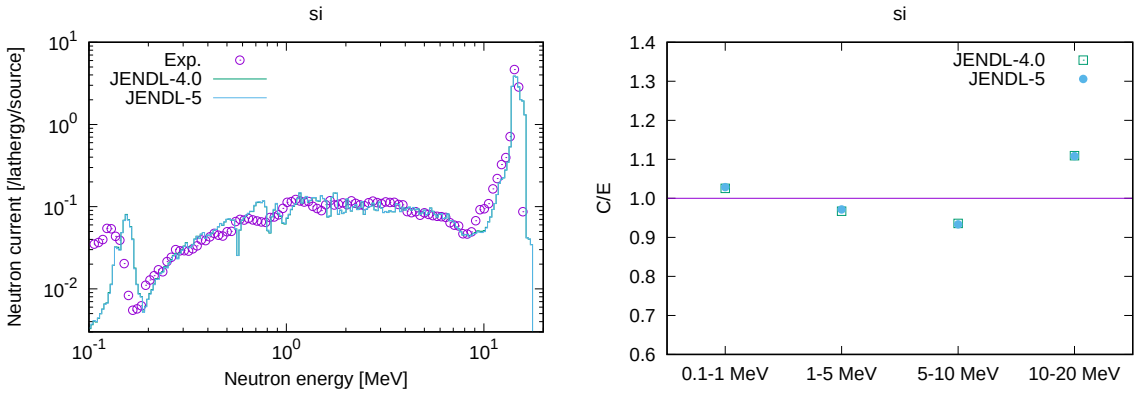

Figure 1: Neutron spectra and C/Es of integarted neutron currents in OKTAVIAN experiments (1)

References

[1] Konno C, et al. JENDL-5 benchmark test for shielding applications. J Nucl Sci Technol. 2023; 60:1046-1069.

[2] van der Marck SC. Benchmarking ENDF/B-VII.0. Nucl Data Sheets 2006; 107:3061-3118.

* /CBGCAL/Oktavian/Result

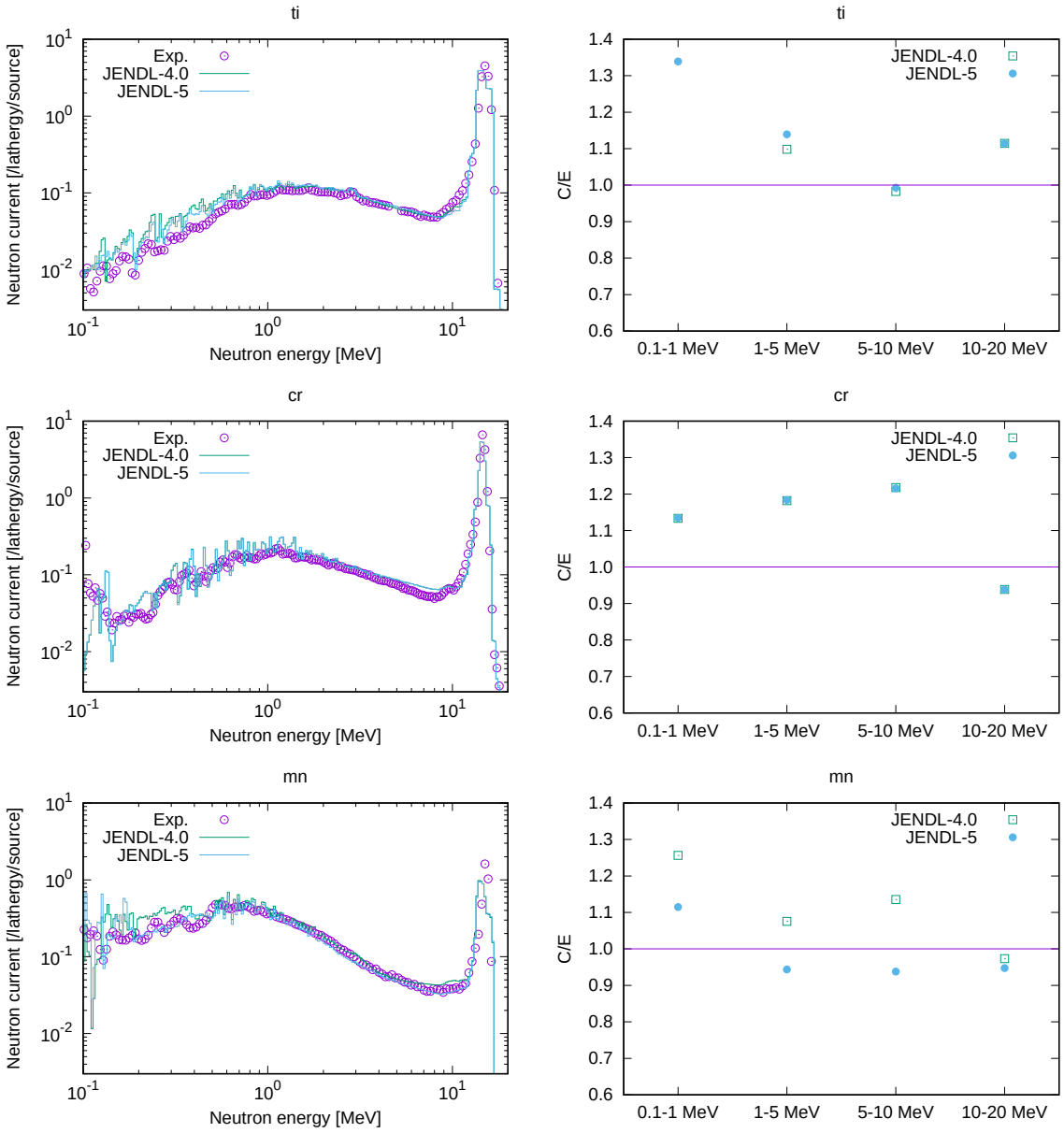

Figure 2: Neutron spectra and C/Es of integarted neutron currents in OKTAVIAN experiments (2)

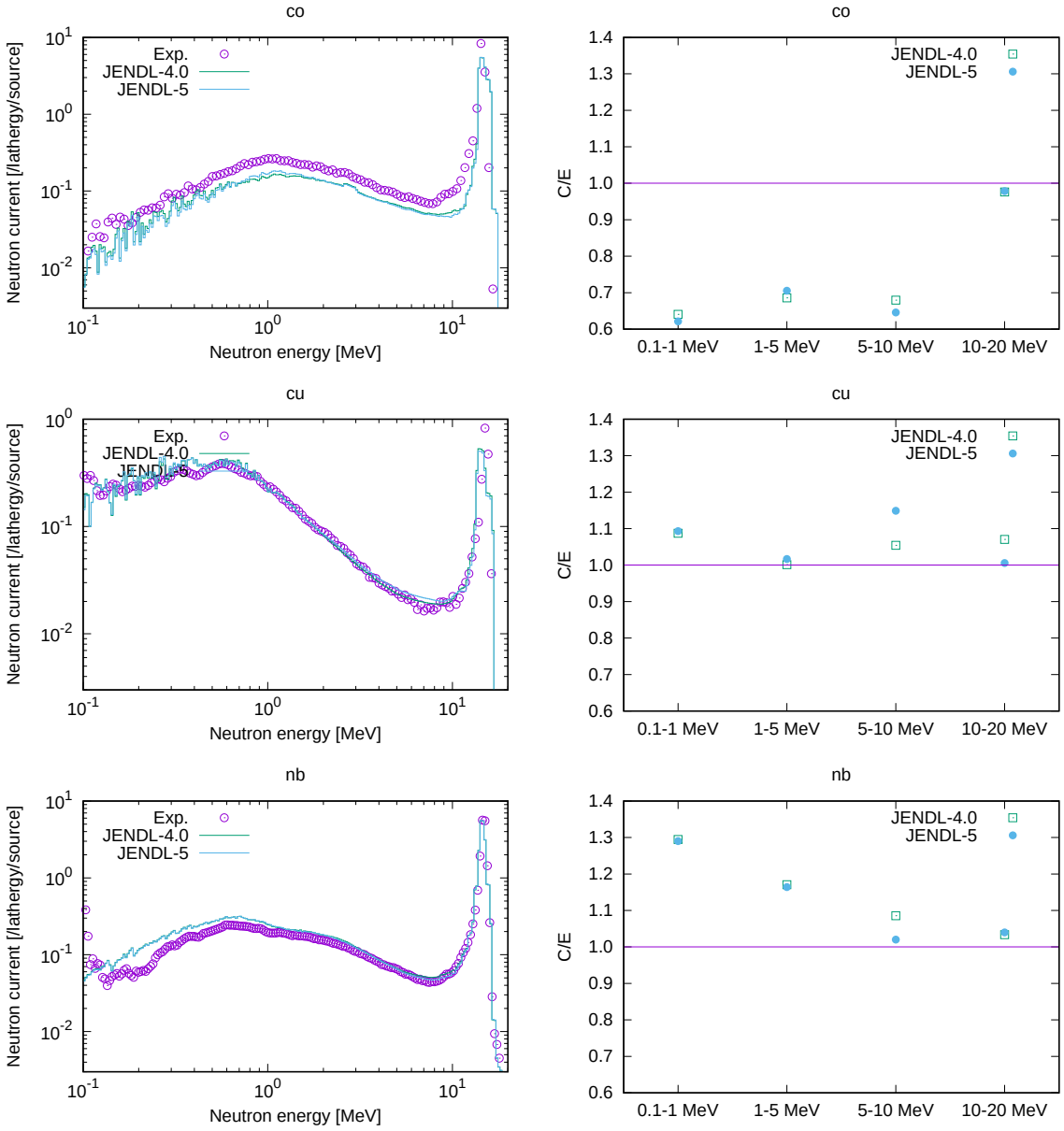

Figure 3: Neutron spectra and C/Es of integarted neutron currents in OKTAVIAN experiments (3)

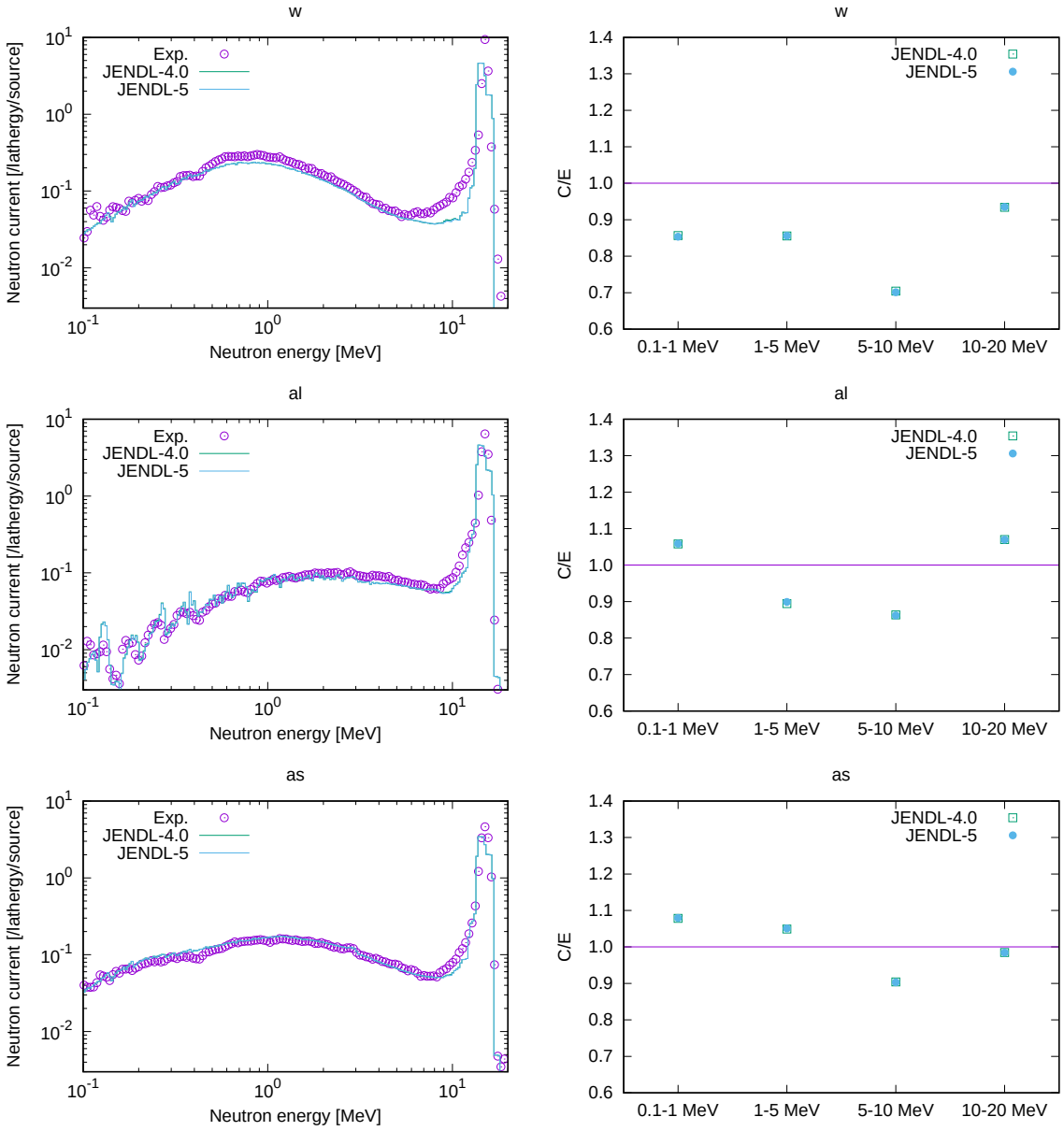

Figure 4: Neutron spectra and C/Es of integarted neutron currents in OKTAVIAN experiments (4)

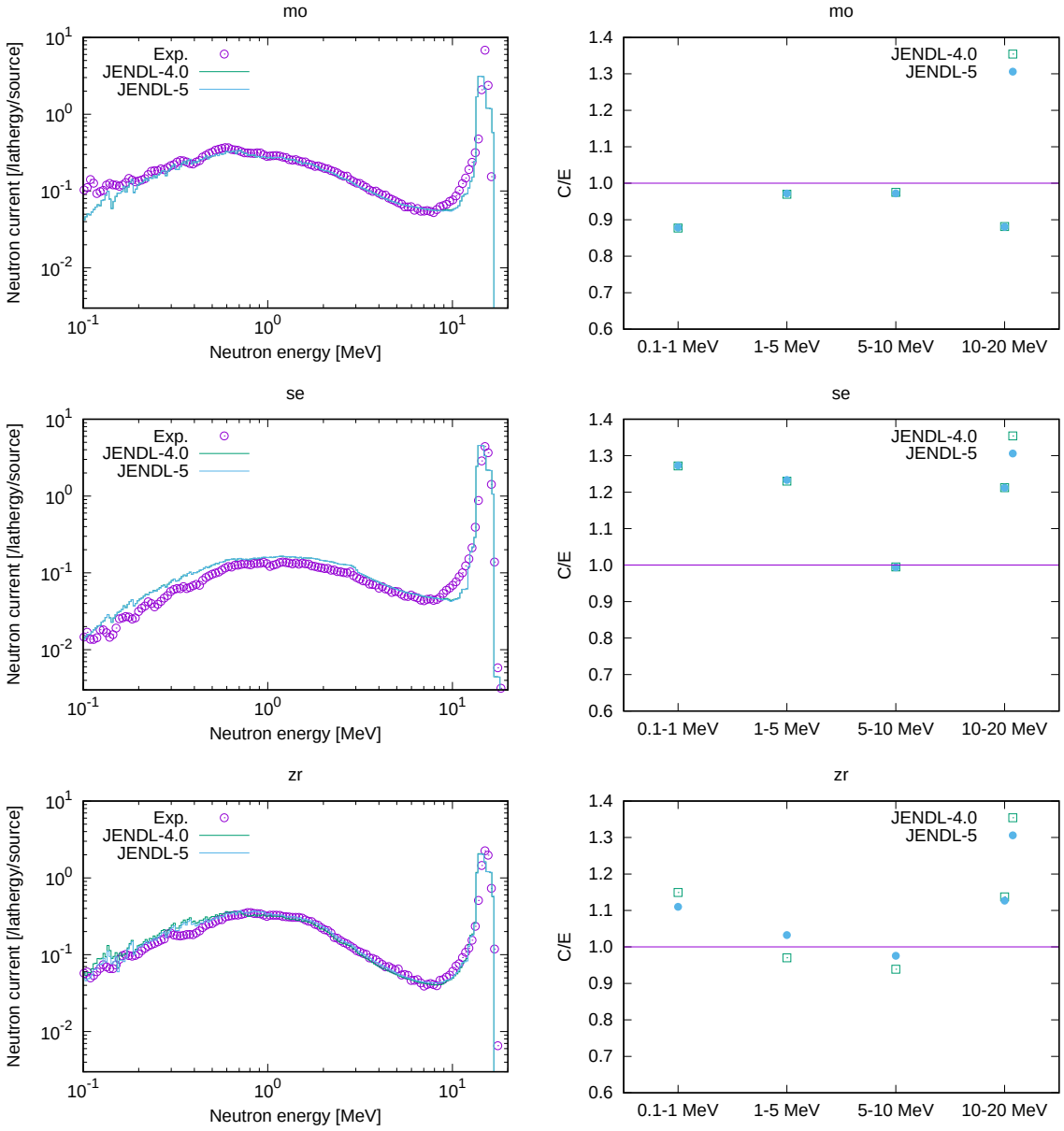

Figure 5: Neutron spectra and C/Es of integarted neutron currents in OKTAVIAN experiments (5)