Neutron reaction on XXX under the CIELO Collaboration

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Abstract.

Note we do not yet know page restrictions for these individual CIELO papers, but plan for somewhere between 4-10 pages each. (The same ND2018 issue will have a large 100+ paper on ENDF/B-VIII, and a large 30+ page paper on new standards). Thus we expect perhaps 150 pages reserved for separate CIELO papers.

I. INTRODUCTION

The paper should be journal quality; it will be peer reviewed.

Give background, e.g. - The CIELO pilot project was commissioned by the OECD's Nuclear Energy Agency WPEC (Working Party on International Nuclear Data Evaluation Co-operation) during a meeting held in May 2012. The goal has been to identify deficiencies and discrepancies in our current understanding of neutron reactions on high priority nuclides ^{1}H, ^{16}O, ^{56}Fe, ^{235}U, ^{238}U and ^{239}Pu, and to develop proposed solutions and improvements in our understanding. The goals of CIELO are documented in Ref. [**?**]. This reference, together with other papers such as Refs. [**? ? ?**] document some of the questions being addressed.

Explain clearly which isotope and cross sections or energy/angle distributions will be addressed.

Explain the background as to why our previous understanding was inadequate. Why - a lack of accurate experimental data? Insufficiently reliable model predictions? What were the assessed uncertainties prior to the present work?

Possibly summarize the applications that have motivated the work.

II. RESULTS

Explain the basis for your new conclusions - new experiments made, theory, new analyses?

What are your new proposed uncertainties?

Proposed or recommended evalations should (a) provide a ENDF-formatted file that can be archived on the NEA CIELO web site; and (b) be documented in this paper, with illustrative figures that compare the recommendation against the main evaluated data libraries, such a ENDF/B-VII.1 [**? ?**], JEFF-3.1 [**? ?**], JENDL-4.0 [**?**], BROND/ROSFOND [**?**], and CENDL-3.1 [**?**].

What are remaining open questions that remain unsolved?.

[1] M. B. Chadwick *et al.*, Nucl. Data Sheets **118**, 1 (2014).
[2] A. Plompen *et al.*, IAEA report INDC(NDS)-0597 (2012).
[3] E. Bauge *et al.*, Eur. Phys. J. A **48**, 113 (2012).
[4] M. Salvatores, *et al.*, Nucl. Data Sheets **115**, xxx (2014).
[5] M. B. Chadwick *et al.*, Nucl. Data Sheets **112**, 2887 (2011).
[6] A. Kahler *et al.*, Nucl. Data Sheets **112**, 2997 (2011).
[7] A.J. Koning *et al.*, JEFF Report **21**, NEA (2006).
[8] A.J. Koning *et al.*, JEFF Report **23**, NEA (2013).
[9] K. Shibata *et al.*, J. Nucl. Sci. Technol. **48**, 1 (2011).
[10] S.V. Zabrodskaya, *et al.*, Nucl. Const. **1-2**, 3 (2007).
[11] Z.G. Ge *et al.*, J. Korean Phys. Soc. **59**, No. 2, 1052 (2011).

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III. APPENDIX - POSSIBLE CIELO NDS PAPERS?

First, the big ENDF/B-VIII paper will include many co-authors who contributed CIELO work that was adopted for ENDF/B-VIII. The big ENDF/B-VIII paper will fully document the new evaluation, reasons for evaluation choices, and how B-VIII compares to B-VII.1 and other evaluations. Many co-authors of this paper will not want to write separate CIELO papers - **we certaintly do not want to be duplicative.** But some co-authors will reasonably want to have additional CIELO papers, because (a) they may want to go into more detail there; (b) there may be work they have done that was not adopted in VIII, and it should be documented still for CIELO; and (c) they may want first-author credit for what they have done.

I am aware of the following possible separate CIELO papers for NDS January 2018, and I will refine this list over the coming months, with CIELO collaborators and with the NDS editor, Pavel Oblozinsky (many people listed below have not yet affirmed their interest/willingness; and there will be additions to this list).

- Chadwick - short overview of CIELO SG40 objectives and accomplishments
- Hale et al - 16O evaluation ?
- Hale, Kunieda, Livermore collaborators, ... Broader O16 collaboration conclusions on magitude of n,a based on unitarity
- Georginis, Plompen et al - conclusions on 16O (n,a) corrections on historic data
- Plompen et al, the low energy 16O total elastic cross section
- Leal? - his R-matrix 16O evaluation (not in B-VIII)
- Herman et al - BNL staff - more details on 56Fe in fast region?
- Trkov et al - resonance region of 56Fe
- Leal et al - new resonance analysis of 56Fe
- Chinese work on 56Fe - eg inelastic scattering evaluation
- Romain, Morillon, Bauge et al - CEA fast actinide evaluations
- Chinese work on 235U
- M.Pigni et al (Trkov) resonance analysis of 235U
- R. Capote et al, fast 235U and 238U analysis
- L. Leal resonance analysis of 235U
- Schillebeeckx et al., new Geel 238U resonance analysis - MBC notes not yet in B-VIII-beta1
- Kawano - 238U and LANSCE capture theory and moel calculations
- Neudecker - PFNS evaluations of actinides - incl those that did not make it into B-VIII, eg thermal 239Pu
- Talou - multiplicity dependent fission neutrons and gamma-rays
- Kawano, Capote, Romain, et al, latest conclusions on actinide inelastic cross sections