Consultant's Meeting on the Evaluation of Photon Strength Function Data

Report of Contributions

https://conferences.iaea.org/e/365

Contribution ID: **1** Type: **not specified**

Update on theoretical photon strength functions

Monday, 9 October 2023 11:15 (1 hour)

The following action points will be presented
- Theoretical estimates of the photon strength function (PSF) in 1MeV energy bins
- Test of the microscopic BSk27+QRPA PSF on MSC spectra
- Test of theoretical PSF on (p,p') data
- Test of the new 2023 PSF library

Primary author: GORIELY, Stephane

Presenter: GORIELY, Stephane

Contribution ID: **2** Type: **not specified**

"Neutron capture today"= description of actions and results from the indc(nds) –0886 (2023) tbp

Monday, 9 October 2023 10:15 (1 hour)

The low mass A < 70 targets have been revisited and improved and delivered to NDS as an upgrade to the NDS PSF data base. The available information on the direct capture DC contributions has been surveyed and its contribution to the total E1 and M1 primary strength established.
The primary data - The achieved improvements in recent thermal neutron capture data have been acknowledged and in detail tested for 57Fe data. The main improved feature is the extension of low energy Eg detection limit close to zero energy. The primary transitions, assigned with the improved arguments and accuracies of the determined decay schemes allow to address the "upbend"region directly and not by the shape trend analysis as in many earlier attempts. The 57Fe preliminary comparison between different PSF experimental data suggests the need to re-analyse many low energy PSF data with the THC high quality data.
The secondary data -The wealth of secondary transitions, assigned with the same accuracy as the primaries, offer the possibility to study the PSF data using the decay of bound levels with Ex < Bn. This is a novel approach, which allows to study the PSF behaviour not only for the Eg dependence but also as a function of the position of the Ex energy in the decay scheme. This method is in the state of testing.

Primary author: KOPECKY, Jiri

Presenter: KOPECKY, Jiri

Contribution ID: **3** Type: **not specified**

Report on assigned actions

Monday, 9 October 2023 14:45 (1 hour)

I will go over all actions which were assigned to me during the meeting last year and give a status update on each.

Primary author: WIEDEKING, Mathis

Presenter: WIEDEKING, Mathis

Contribution ID: **4** Type: **not specified**

Photon Strength Function database –current status and next steps

Monday, 9 October 2023 15:45 (1 hour)

The following issues/assignments will be discussed:
- updating the database
- new HIgS data
- Photonuclear data update
- new interactive interface (to be presented by Sandile Jongile)
The next steps should be to perform an evaluation of the PSF data. The proposal is to apply a no-model evaluation using statistical methods such as Bayesian Inference. An important prerequisite for such an evaluation is to carefully select consistent experimental data.

Primary author: Dr DIMITRIOU, Paraskevi (International Atomic Energy Agency)

Presenter: Dr DIMITRIOU, Paraskevi (International Atomic Energy Agency)

Contribution ID: **8** Type: **not specified**

Development of a Photon Strength Function Database

Wednesday, 11 October 2023 09:00 (1 hour)

The "Photon Strength Function (PSF) Interface" stands as a robust web application explicitly crafted for the extraction, management, and presentation of PSF data from currently available here. This interface centralizes data primarily sourced from .dat and .readme files available on the IAEA's Photon Strength Function (PSF) webpage.
The highlight of this project is its enhanced query and visualization capabilities, features notably absent from the original webpage. The system is designed to first upload data into a structured database, organizing information derived from both .dat files and associated README files. In doing so, the application ensures that every .dat file is paired with its corresponding .readme, melding the primary data, and metadata with its contextual backdrop.
Offering users an interactive platform, the interface facilitates database searches using specific fields like A(mass number), Z(proton number), Multipolarity, and method. Such queries give detailed visual representations, ranging from expansive data overviews to details on individual records. These visualizations, in the manner of graphs, present the data in an intuitive and comprehensible manner.
Once a query is executed, users are presented with a dynamic table that encapsulates their search results. This table, augmented with column-specific search functionalities, provides users with the flexibility to refine and reorder their results, ensuring a streamlined browsing experience.
In conclusion, the "Photon Strength Function Interface" is an integral component of a larger initiative. While the current focus is on experimental data, future phases of the project will encompass theoretical data as well in addition to other enhancements. In this demonstration, I will elaborate on the progress made thus far.

Primary author: Dr JONGILE, Sandile (iThemba LABS)

Presenter: Dr JONGILE, Sandile (iThemba LABS)

Session Classification: PSF interactive retrieval platform

Contribution ID: **9** Type: **not specified**

Update on PSFs from coincidence measurements following neutron capture

Monday, 9 October 2023 12:15 (1 hour)

- Details of comparison of predictions with BSK27 Skyrme interaction with MSC spectra will be given
- Update on PSFs from analysis of MSC spectra reached after the end of the CRP

Primary author: Mr KRTIČKA, Milan (Charles University, Prague)

Presenter: Mr KRTIČKA, Milan (Charles University, Prague)