

# Photon Strength Function database – current status and next steps

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# Photon Strength Function Database



- Updating the PSF database since 2019:
  - At previous meeting: **update Sep 2022**
    - ARC/DRC
    - **New** THC-EGAF
  - New: **see Mathis' presentation**
    - New data (missing previously): OM, NRF (HIgS), pp
    - Corrected datasets: high-energy cut-off
    - Uploaded on web: **May 2023**

# PSF database cont'd



- Comments:
  - Static webpage was temporary solution to make data sets available until a proper database and retrieval interface were created
  - Data files are mainly checked for correct data format - # comments sections and readme files are not strictly formatted for programmatic access
  - With the new database: strict quality control will be enforced

# PSF database cont'd



- Observation: datafiles either contain exp. data publication or compiler's name in Author field.
  - We need to have consistency in the comments (#) fields in the datafiles to make parsing information possible
- Proposed changes in format:
  - Add additional #field for compiler
  - Author field will contain publication of exp. data not the compiler's name
- Inconsistent datafile identifiers:
  - “f...\_a.dat” can mean either a, b, c,... or alpha-particle → this has been rectified but there are many other cases that need to be addressed
- **New retrieval interface: Sandile (Wednesday)**

# Contents at present

	PSF database	No
	A	
PPo	96, 120, 208, 112,114,116,118,124	3+18
Ratio	95	1
PG	46-90	17
NRF	74 – 136, 181,196	29+8
OSLO	44 – 243	68+32
NG	20 – 240	160
THC	20-233	140
ARC/DRC	20-240	220

# What needs to be done

- Photonuclear data update
  - Oleksandr Gorbachenko, Vladimir Plujko
  - timeline tbd
- HlgS data (tables received from A. Tonchev):
  - Cross sections for Te-130, In-115, Pb-206
  - Convert to PSFs
- New data (OM) from Mathis

# Next step: Evaluation

- Method: evaluation of PSF data using statistical methods that correctly consider correlations
- Statistical method: Bayesian inference
- Method already applied to cross-section data (IAEA/NDS team)

# Conditions

- Definitive experimental database with experimental data that are consistent within uncertainties
- Experimental data need to be assessed in order to know which data sets to include in evaluation
- Uncertainties should be determined: statistical and systematic
- What about model-dependent uncertainties?



# To Do

- Select most suitable cases with multiple methods measurements and well-defined uncertainties
- Select those methods that are consistent within the uncertainties
- This must be discussed at this meeting
- Next meeting: bring together additionally evaluators & experimentalists to discuss evaluation



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*Thank you!*

