Decay Data Evaluation Project (DDEP): Dissemination and visualisation of reference decay data

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Link to LNHB posters

Introduction

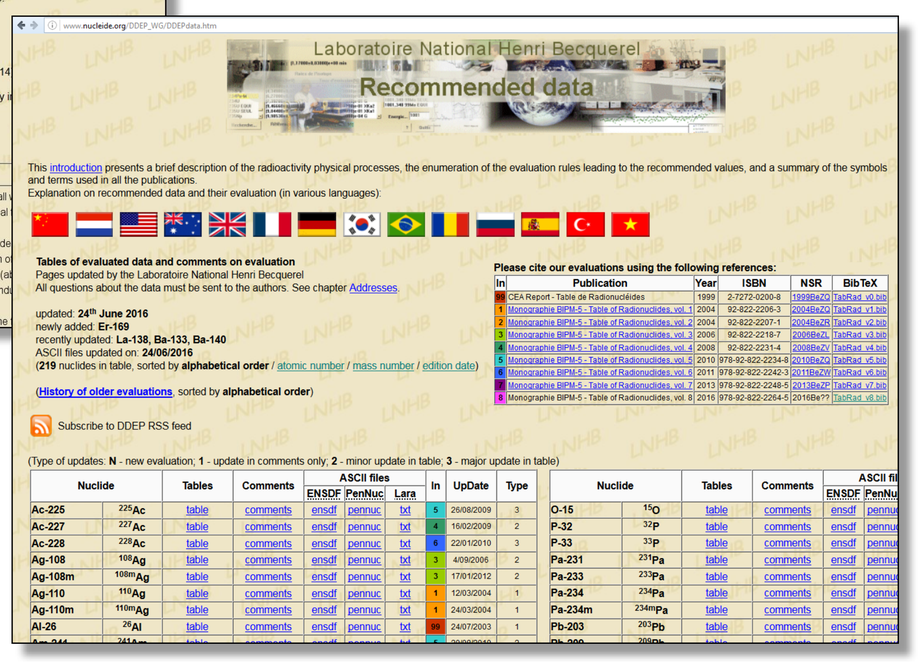
LNHB, through its participation to the DDEP, is deeply involved in decay data evaluation and publication. Our laboratory is in charge of the dissemination of the recommended decay data to the users, once the evaluation process is completed. Multiple media may be used for this purpose: tabulated data files on our website, regular or special paper publications, and online access thanks to a specially developed web application, LARAWEB. We present you hereafter some of these media.

LNHB website

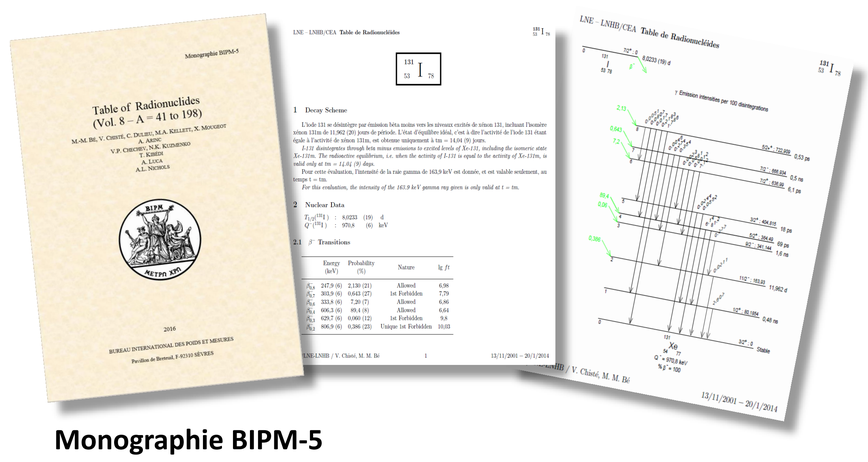
This is the entry point to find all necessary information on recommended decay data.
- New recommended radionuclide decay data are regularly uploaded
- Links to the already published dataset collection (e.g. Monographie BIPM-5 volumes, Mini Table)
- Links to other useful publications (table of half-lives, table of α, X and γ emissions, etc.)

http://www.nucleide.org/NucData.htm

Recommended decay data files:
- data tables and decay scheme (PDF)
- comments on the evaluation process (PDF)
- various export formats (ENSDF, PenNuc, text file)



Paper publications



Monographie BIPM-5
Already 7 volumes published ≈ 220 radionuclide evaluations
(Volume 8 in press)

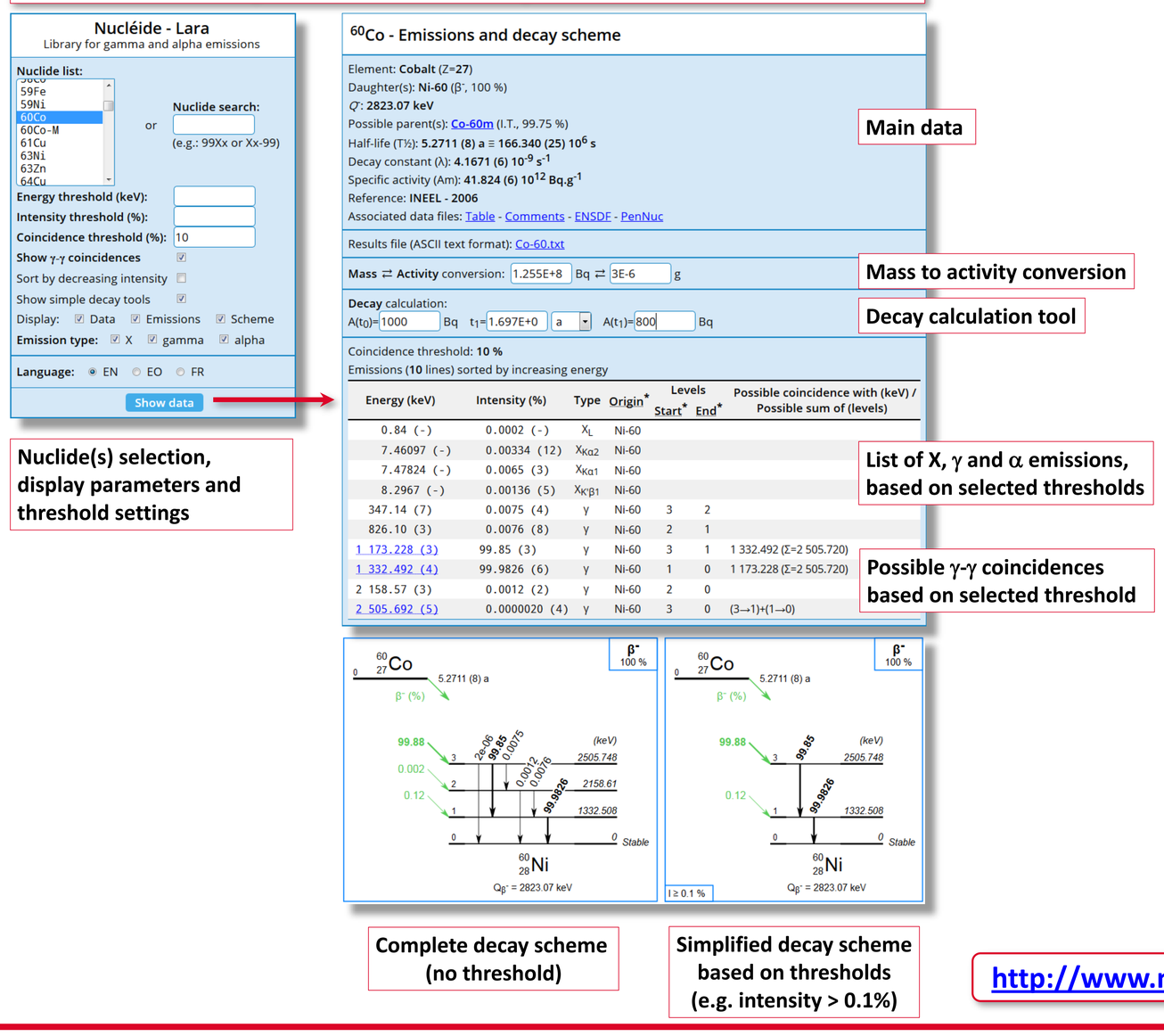
Mini Table of Radionuclides
New edition published in 2015
≈ 300 radionuclides

NUCLÉIDE-LARA
Library for alpha, gamma and X emissions
≈ 400 radionuclides
(New edition in 2017)

LARAWEB: online application for alpha, X & gamma spectrometry

Main features of LARAWEB are:
- Direct consultation of decay data, emissions and decay scheme for a selected nuclide (intensity and energy thresholds may be set)
- Advanced search engine with multiple criteria: decay mode (β^+/ε, β^-, IT, α), emission type (α, X or γ), intensity, energy, atomic mass, half-life. Relevant results are highlighted.
- Simple calculation tools: mass to activity conversion, decay calculation

Simple consultation of decay data and scheme



Nucléide - Lara: Nuclide(s) selection, display parameters and threshold settings

60Co - Emissions and decay scheme: Main data

Mass ⇄ Activity conversion

Decay calculation tool

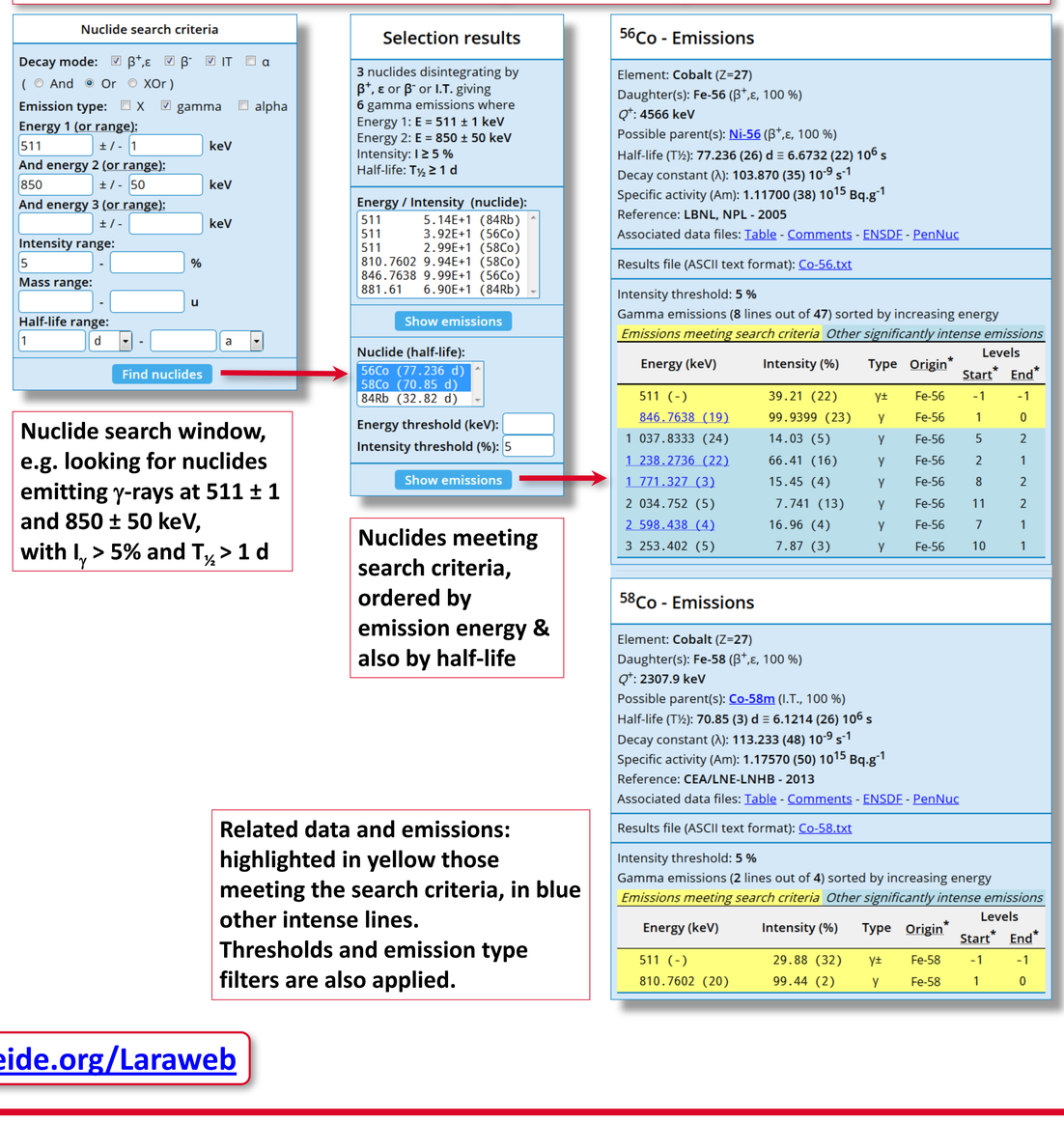
List of X, γ and α emissions, based on selected thresholds

Possible γ-γ coincidences based on selected threshold

Complete decay scheme (no threshold)

Simplified decay scheme based on thresholds (e.g. intensity > 0.1%)

Advanced search engine with multiple criteria



Nuclide search window, e.g. looking for nuclides emitting γ-rays at 511 ± 1 and 850 ± 50 keV, with I_γ > 5% and $T_{½}$ > 1 d

Nuclides meeting search criteria, ordered by emission energy & also by half-life

Related data and emissions: highlighted in yellow those meeting the search criteria, in blue other intense lines. Thresholds and emission type filters are also applied.

http://www.nucleide.org/Laraweb

Conclusion

Many new developments have been implemented in the online tool LARAWEB, including information on γ-γ coincidences and the ability to plot decay schemes.
In particular, the use of intensity thresholds allows the main decay radiations to be displayed and a simplified decay scheme to be plotted, which is unique to LARAWEB.

We would like to express our sincere thanks to all members of the Decay Data Evaluation Project, past and present.