

Update of ZCross data on LxCat

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LxCat

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SCATTERING CROSS SECTIONS

DIFFERENTIAL SCATTERING CROSS SECTIONS

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Complete set of cross sections

This section is specifically designed to download complete set of cross sections for one or more species from available data bases. [Continue »](#)

Staging area

This section contains data that currently cannot be properly incorporated in the LxCat database. These downloads are provided as a temporary solution.

XML converted database by Michele Renda

Last update: 4-Mar-2024. [Download](#)

This archive contains the LxCat Integral cross-section data in ZCross XML format. This format is validate against an XSD Schema (<https://gitlab.com/micrenda/zcross/-/raw/master/share/zcross/zcross.xsd>) and contains some additional information such as the complete bibliography references (including DOI) for all the journal articles mentioned in the descriptions and comments. These XML files can be used "as-is" to be read by your simulation software or, eventually, can be read using ZCross (<https://gitlab.com/micrenda/zcross>), a C++ library which allows parsing, validating and filtering cross-section tables.

Please be aware that the data contained in these archives are copyrighted by their respective authors and, to use them, you have to accept the LxCat redistribution policy (<https://www.lxcat.net/instructions/redistribution.php>)

Some important notes:

1. This archive is generated from the official LxCat cross-section data on weekly basis.
2. The elastic, momentum-transfer and viscosity tables are labeled with their momentum order (0,1,2, etc.)
3. The 'refs' attribute points to the respective bibliography entries.

For feed-backs, suggestions or support, please contact Michele Renda (michele.renda@cern.ch).

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Databases

biagi-v7.1	community	ist-lisbon	puech
biagi-v8.9	cop	itikawa	quantemol
bordage	emol-lehavre	laporta	siglo
bsr	flinders	morgan	triniti
ccc	hayashi	ngfsrdw	viehland
christophorou	iaa	phelps	

Check this before to use. If it is too old, contact us!

```
<?xml version="1.0" encoding="UTF-8"?>
<zcross xmlns="https://zcross.net" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="https://zcross.net zcross.xsd" version="1.0" created="2024-02-29 06:57:41">
  <database id="iaa" refs="1,2">
    <name>IAA (IAA)</name>
    <description>Combination up to 2022 of experimental, theoretical and own calculations of electron
integral/differential cross sections with atmospheric species. The work was realised by Anthony
Schmalzried during his PhD thesis at the Instituto de Astrofísica de Andalucía in Granada, Spain
under the supervision of Dr. Alejandro Luque and Dr. Nikolai Lehtinen from the University of
Bergen, Norway. Compiled data was only extracted from published results but not from other
databases on lxcat. Highlights: * Use of analytical formulae for electronic exc. and ionisation.
```

Bibliographygft5gvb

- Each database is filled with correct bibliography for the source of the data.
- More the 350 bibliography references are provided, including DOI, in Bib-latex format.
- In future, we would like to provide a better way to display these bibliography, may be inline (link) with the table descriptions (in collaboration with LxCat team)

```
<reference id="2">
@article{kim_extension_2000,
  title = {Extension of the binary-encounter-dipole model to relativistic
  volume = {62},
  url = {https://link.aps.org/doi/10.1103/PhysRevA.62.052710},
  doi = {10.1103/PhysRevA.62.052710},
  abstract = {Formulas for the total ionization cross section by electron
  atoms from the new relativistic formulas are compared to experimental da
  applications to ion targets and inner-shell electrons of neutral atoms ar
  effects are small, and both forms of the {BEB} cross sections agree well
  Phys. B 15, 155 (1982)] after correcting for relativistic effects as sho
  increases. The {BEB} model is also applied to the total ionization cross
  pages = {052710},
  number = {5},
  journaltitle = {Physical Review A},
  shortjournal = {Phys. Rev. A},
  author = {Kim, Yong-Ki and Santos, José Paulo and Parente, Fernando},
  urldate = {2024-03-03},
  date = {2000-10-13},
  note = {Publisher: American Physical Society},
}
</reference>
<reference id="3">
@article{kurokawa_high-resolution_2011,
  title = {High-resolution total-cross-section measurements for electron s
  volume = {84},
  url = {https://link.aps.org/doi/10.1103/PhysRevA.84.062717},
  doi = {10.1103/PhysRevA.84.062717},
  abstract = {Absolute total cross sections for electron scattering from A
  groups down to 100 {meV}, above which several experimental works have be
  obtained in the present analysis differ from the values determined from
  carried out based on the spin-dependent resonant scattering theory in ord
  pages = {062717},
  number = {6},
  journaltitle = {Physical Review A},
  shortjournal = {Phys. Rev. A},
  author = {Kurokawa, M. and Kitajima, M. and Toyoshima, K. and Kishino, T
  urldate = {2024-03-04},
  date = {2011-12-29},
  note = {Publisher: American Physical Society},
}
</reference>
<reference id="4">
@article{zatsarinny_electron-impact_2014,
  title = {Electron-impact excitation of argon at intermediate energies},
  volume = {89},
  url = {https://link.aps.org/doi/10.1103/PhysRevA.89.022706},
  doi = {10.1103/PhysRevA.89.022706},
  abstract = {Large-scale R-matrix-with-pseudostates calculations for elect
  (with respect to the number of coupled states) results for electron-impac
  representing the bound spectrum and the remaining 422 the ionization con
  experimental data for excitation raises questions about the absolute nor
  pages = {022706},
  number = {2},
  journaltitle = {Physical Review A},
  shortjournal = {Phys. Rev. A},
  author = {Zatsarinny, Oleg and Wang, Yang and Bartschat, Klaus},
  urldate = {2024-03-04},
  date = {2014-02-18},
  note = {Publisher: American Physical Society},
}
</reference>
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Thank you