Database of radioactive isotopes produced at the BigRIPS separator

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We have been developing a database of radioactive isotopes (RI) produced at the BigRIPS separator[1]. The RI database entries include the following information:

- Production cross section
- Production yield
- Calculated value by LISE++ code[2]
- Experimental conditions
  - Primary beam
  - Target
  - Device settings
  - Magnetic rigidities
  - Measurement date
- Publication list
  - Title
  - Journal
  - First author
  - Journal digital object identifier (DOI)
  - Produced RI beam(s)
- Isomeric nucleus
  - Gamma ray energy
  - Half life

All entries are stored in a relational database that is based on Microsoft Access 2010.

The RI database is synchronized with a web site. The web site is coded using PHP. The top panel of Fig. 1 shows the web interface of the RI database. The RI database consists of nuclides, which includes RIs produced at the BigRIPS separator. RIs differentiated using red color text. The bottom panel of Fig. 1 shows an example, ^{128}Pd isotope. The production cross section and yield together with calculated value by LISE++ code are listed. Two journals about ^{128}Pd are also shown there. The detailed BigRIPS setting for ^{128}Pd can be accessed through the hyperlinked ID value, 80.

This web site also has a retrieval interface. This search allows a Boolean $_{AND}$ search over several categories (mass number A, atomic number Z, neutron number N, and so on). The results of search are listed on the user's browser. Furthermore, the cross section file for LISE++ and figures of production cross sections and production yields can be obtained from the search results.

The RI database and its web site assist on RIBF user to design RI beam experiments using the BigRIPS separator. Work on the system is currently ongoing and it is planned for practical implementation in the near future.

Fig.1. Web interface. The upper panel shows nuclides. Cyan, pale green, and yellow indicate nuclei, isomers, and new isotopes produced at the BigRIPS separator. The production cross section and production yield for the nucleus of interest can be accessed through the hyperlinked site. The lower panel shows an example of ^{128}Pd isotope. The production cross sections and production yields together with the BigRIPS setting are listed. Two journals about ^{128}Pd are also shown.

References
1) T. Kubo et al.: Nucl. Instr. and Meth. **B 204**, 97 (2003).
2) O.B. Tarasov and D. Bazin: LISE++ site, http://lise.nscl.edu, Michigan State University.

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