

The Bettersize S3 Plus Laser Analyzer was purchased from CPS U.S., Inc. in spring 2020. This instrument is capable of measuring the size and shape of particles of soil and sediment and granular powders within the range of 0.01 and 3500 microns using laser diffraction technology.

Members of the CoRPS Working Group developed and submitted an internal proposal for the purchase of the instrument. The following partners committed funds or other support to allow the purchase of the Bettersizer instrument:

Office of the Vice-President of Research  
College of Arts & Sciences:  
Department of Geography:  
Department of Geological Sciences:  
Center for Sedimentary Basin Studies:  
Lisa Davis, Associate Professor of Geography  
Rebecca Minzoni, Assistant Professor, Geological Sciences

Priority users of the instrument include faculty members from Geography and Geological Sciences. A Google calendar is used to schedule use of the instrument, which is managed by the Bettersizer Management Committee. When the instrument is not being used by a priority user, the instrument is available for use by others, with priority given to faculty, professional staff, and graduate students from Geography and Geological Sciences, followed by College of Arts & Sciences faculty, professional staff, and graduate students, followed by users outside of the College of Arts & Sciences from the University of Alabama, and finally users from outside of the University of Alabama.

**Requests to use the instrument must be made through the Bettersizer Management Committee via the Bettersizer Instrument webpage: <http://corps.ua.edu/bettersizer.html>**

**Users will be required to complete and submit a [Sample Submission and Project Information Form](#) and to provide payment information. Within one week of the form's submission the Bettersizer Management Committee will contact the user to discuss scheduling, training, and other concerns related to the use of the instrument.**

The Bettersizer Management Committee will manage shared use of the instrument using the guidelines explained in Section A: Bettersizer Shared Use Guidelines. Additional guidelines have been put in place owing to the Covid-19 Pandemic, detailed in Section B.

**The Bettersizer Management Committee retains the right to refuse sample analysis to anyone with the potential to spread <sup>14</sup>C isotope trace contamination. The instrument is housed in a radiocarbon clean room lab (see Section C for more information).**

## **SECTION A: BETTERSIZER SHARED USE GUIDELINES**

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This is a working document and will be revised as necessary to accommodate new policies and communication needs.

1) Management committee

- a. Following the purchase of the PSA a Management Committee (MC) was established to develop guidelines for the operation, maintenance and funding of the PSA. Unless otherwise determined by the committee, Membership will include two (2) representatives from GY, one (1) member from GEOL and one (1) member named by the CORPS membership. The initial committee membership consists of Drs. Lisa Davis and Emily Elliott from GY, Dr. Rebecca Minzoni from GEOL, and Dr. Matthew Therrell representing the CoRPS group. If any member is unable to serve, a new member will be named by the relevant unit Chair.

2) Initial costs of operation

- a. The MC may develop new protocols based on operation costs of the PSA, but it is expected that UA A&S researchers will pay a minimum equivalent per sample cost of \$5.00. UA researchers from outside A&S will pay a minimum of \$10.00 per sample and external academic users (outside of the University of Alabama and not collaborating with UA researchers) will be charged competitive rates of \$20 per sample. Users from GY, GEO, and CSBS will receive a \$2.50 discount per sample credit against their proportional contribution to the initial cost (e.g., the initial contribution of \$3,500 made by CSBS will provide a discount of \$2.50 against the minimum \$5.00 per sample cost for up to 1,400 samples).
- b. In some instances the MC may elect to charge an hourly rate instead of a per sample rate for using the instrument. Examples where this charging scheme may be used include:
  - i. An inexperienced user will be running samples, necessitating more time per sample
  - ii. Multiple users would like to use the instrument at the same time

3) Long-term operation costs

- a. Costs that should be included as part of the maintenance and operation of the PSA include:
  - i. ~\$60,000 purchase cost to be amortized over 10 years
  - ii. ~\$2,000 per year maintenance fee payable to the PSA retailer
  - iii. \$25.00 per hr (equivalent) for technician
  - iv. \$500 per year consumables

4) Instrument Operators \*\*\*See Section B for changes in place because of Covid-19\*\*\*

In order to minimize wear and tear on the Bettersizer Instrument, the number of operators will be kept to a minimum.

- a. Eventually a qualified technician will be identified and hired to operate the PSA on a schedule suitable to the requirements of the relevant faculty. We anticipate that this person may initially operate the PSA on an as-needed basis, but will hopefully transition to a regular part- or full-time position.
- b. Until sufficient funds have accrued to make hiring a technician devoted exclusively to the Bettersizer feasible, graduate students working under the supervision of the MC faculty members will be paid by users to process samples.
- c. Under special circumstances the MC may grant individual faculty or graduate students the ability to run their own samples. But such requests will be handled on a case by case basis and the exception, rather than the rule. In these instances, users

trained to use the instrument will be required to pay \$30/hr for training. If supervision while using the instrument is deemed necessary by the MC, then the user will be required to pay \$15/hr supervision time.

5) Funds management

- a. All funds taken in for sample analysis and disbursed for the operation and maintenance of the PSA will be collected and disbursed by the GY Department.

6) Students and teaching

- a. All UA student researchers will normally be expected to pay the minimum sample analysis fee of \$5.00 (regardless of College affiliation) however, the Management Committee may waive the fee on a case by case basis.
- b. Faculty (of any rank) wishing to use the PSA for teaching purposes should make proposals to the MC who may waive or reduce the analysis fee.
- c. Undergraduate students cannot work with the Bettersizer unsupervised under any circumstances to comply with University Health and Safety standards. They must be under direct supervision by a graduate student or faculty member the whole time they are using the machine or working in the lab space. If the faculty member supervising the undergraduate student cannot facilitate this supervision, but still would like for the undergraduate to work with the Bettersizer, then it may be possible for the Management Committee to arrange for supervision, *but the faculty sponsor will be assessed an hourly charge for the supervision of \$15/hr. Scheduling of undergraduate supervision time will be based on the convenience of the Management Committee or their graduate students. For example, during a time when faculty or graduate students are working in adjoining labs and have time available for supervising a student.*

## SECTION B: AMMENDMENTS TO OPERATIONAL GUIDELINES BECAUSE OF COVID-19

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Because of the COVID-19 pandemic, the MC has decided that the only personnel allowed to operate the Bettersizer and to use Bevill 1077 for the foreseeable future are graduate students and faculty included in the Research Activity Plans for Dr. Davis's lab and Dr. Minzoni's lab. This is to help minimize the chance of spreading Covid-19 amongst users and to comply with UA's Office of Research and Economic Development policies regarding operating labs during the Covid pandemic, while under modified full operations.

To have samples processed while the pandemic is ongoing, users will be required to:

- **Complete and submit a Sample Submission and Project Information Form and to provide payment information through the Bettersizer webpage, as usual.**
- **Have their samples run by a graduate student covered by the Minzoni and Davis labs' RAPs. This will be contingent on the availability of students.**
- **Need 50 samples or less analyzed.**

- **Users will be expected to pay for sample processing on a per sample basis as explained in part 2 a) of this document.**

## **SECTION C: INFORMATION ABOUT BEVILL 1077 14C CLEAN ROOM PROTOCOLS**