

BGS/ChemSep Workshop

(Berkeley Gas-filled Separator / recoil Separator for heavy element Chemical studies)

Friday November 21, 2003 (the day after TAN 03), 08:30-18:00

Lawrence Berkeley National Laboratory, Building 54 (Perseverance Hall)

Organizers:

Ken Gregorich, LBNL, [REDACTED]

Matthias Schädel, GSI, M.Schaedel@gsi.de

Andreas Türler, TUM, [REDACTED]

Heino Nitsche, LBNL, [REDACTED]

Purpose

A BGS/ChemSep workshop will be held in Berkeley to discuss the scientific opportunities and challenges with the use of a recoil separator as a pre-separator for heavy element chemical studies (the ChemSep concept). This is a follow-up to the ChemSep workshop held at GSI on March 20-21, 2002 [REDACTED].

The scope of the BGS/ChemSep workshop will be two-fold:

- 1) Identify scientific opportunities and challenges for transactinide element chemical studies with the Berkeley Gas-filled Separator (BGS) at the LBNL 88-Inch Cyclotron during the next several years.
- 2) Develop a conceptual design for a separator to be built exclusively for use in heavy element chemistry experiments. Plan and design experiments for this future facility.

This will be an informal workshop. There will be several talks covering

- a) The capabilities (and expected future operation of) of the 88-Inch Cyclotron and the Berkeley Gas-filled Separator. Details of the interface of the BGS with chemical experiments will be given.
- b) Reviews of the heavy element compound nucleus separators and experimental programs at various laboratories, with emphasis on new or emerging technologies that are applicable for heavy element chemical studies.
- c) Descriptions of new and future chemical separation techniques, once again, with emphasis on those aspects that will be used in chemical studies of the heaviest elements.

The workshop will finish with a panel discussion where the various ChemSep challenges will be enumerated and discussed.

Location

The workshop will be held at the Lawrence Berkeley National Laboratory in Perseverance Hall. Driving directions from the TAN03 site are available from Yahoo Maps. General transportation directions to LBNL are given on the LBNL website. Perseverance Hall is building 54 (sector E-2) on the LBNL site map. Please note that on this map, north is to the left.

Lodging

Several lodging options are listed at the 88-Inch Cyclotron webpage [REDACTED] under the "user guide" link. Those listed with a red asterisk are within walking distance of the LBNL shuttle bus.

Transportation and Parking

Parking at LBNL is limited. If at all possible, please arrange to use the LBNL shuttle bus. A limited number of parking spaces will be reserved for the workshop in the parking lot north of building 54 (east of building 70). Please carpool!

Program

The first half of the morning session will concentrate on the facilities and experimental possibilities at Berkeley with the BGS at the LBNL 88-Inch Cyclotron. (An agreement is being worked out in which the 88-Inch Cyclotron would continue operation on a 5-day-per-week basis with a mission that is 40% applied research (chip testing) and 60% basic research (Nuclear Physics and Nuclear Chemistry). Emphasis will be placed on those aspects important in the use of the BGS as a pre-separator for heavy element chemical studies.

The second half of the morning session will be presentations about the various heavy element separators, with emphasis on the details of their programs that are applicable for ChemSep.

The first afternoon session will consist of presentations about chemical separation techniques used for transactinide element chemical studies. Speakers have been asked to focus their attention on aspects that can be used in superheavy element chemistry with ChemSep.

The final session in the afternoon will be a panel discussion where the various ChemSep challenges will be enumerated and discussed.

Time	Duration	Speaker, Institution	Proposed Title
08:30	30 min		
09:00	10 min	H.Nitsche, LBNL	Welcome
09:10	15 + 5	Y. Oganessian, FLNR	SHE Reactions, Cross Sections, and Decay Properties
09:30	10 min	K. Gregorich, LBNL	Scope of the BGS/ChemSep Workshop
09:40	15 + 5	D. Leitner, LBNL	LBNL 88-Inch Cyclotron Operation and Capabilities
10:00	15 + 5	K. Gregorich, LBNL	BGS Capabilities & Recoil Transfer Chamber
10:20	20 min		Break
10:40	15 + 5	H.Kudo, Niigata	GARIS Parameters and Experimental Program
11:00	15 + 5	D. Ackermann, GSI	SHIP and the GSI Heavy Element Program
11:20	15 + 5	C. Davids, ANL	Vacuum Separator Concept, ATLAS Capabilities
11:40	15 + 5	cancelled	FLNR Separators, DGFRS, Vassilissa, MASHA
12:00	10 min		Spontaneous Contributions
12:10	10 min		Discussion
12:20	60 min		Lunch (at LBNL cafeteria)
13:20	15 + 5	F. Hessberger, GSI	γ -rays for SHE Detection and Nuclear Structure Studies
13:40	15 + 5	R. Eichler, PSI	SHE Gas-Phase Chemistry
14:00	15 + 5	Ch. Düllmann, LBNL	Volatile Heavy Element Organometallics
14:20	15 + 5	J.P. Omtvedt, Oslo	SISAK @ BGS, SISAK @ ChemSep
14:40	15 + 5	M. Asai, JAERI	Automated Liquid Column Chromatography - AIDA
15:00	15 + 5	A. Türler	Summary and Perspectives
15:20	10 min		Spontaneous Contribution
15:30	10 min		Discussion
15:40	20 min		Break
16:00	120		Panel Discussion

A no-host group dinner will be arranged at a local restaurant.