

Updates from the BGS superheavy element program

R. Orford¹, J.M. Gates¹, R.M. Clark¹, H.L. Crawford¹, P. Fallon¹, F.H. Garcia¹, P. Golubev², J.A. Gooding^{1,3}, S. Kaplan^{1,4}, M. McCarthy^{1,3}, J.L. Pore¹, D. Rudolph², G. Sonderegger^{1,5}, and M.A. Stoyer⁶

¹Nuclear Science Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, USA
²Department of Physics, Lund University, SE-22100 Lund, Sweden
³Department of Nuclear Engineering, University of California Berkeley, Berkeley, California 94720, USA
⁴San Francisco State University, San Francisco, California 94132, USA
⁵University of the Pacific, Stockton, California 95211, USA
⁶Lawrence Livermore National Laboratory, Livermore, California 94550, USA

At Lawrence Berkeley National Laboratory the nuclear properties of heavy and superheavy elements produced at the 88-inch cyclotron facility are studied using the Berkeley Gas-filled Separator (BGS) and FIONA (*for the study of nuclide A*) spectrometer [1]. In this presentation I will give an overview of the current experimental setup and discuss some experimental results including the recent searches for new isotopes of Es [2] and Db [3]. A series of upgrades are also underway in preparation for future new element discovery experiments with the BGS. I will highlight our recent commissioning of a new focal plane detector and digital data acquisition system [4] and give updates on recent beam development at the 88-inch cyclotron.

References

- [1] J.M. Gates *et al.*, Phys Rev Lett **121**, 222501 (2018)
- [2] R. Orford *et al.*, *in prep* (2023)
- [3] J.L. Pore *et al.*, *in prep* (2023)
- [4] P. Golubev et al., in prep (2023)