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Collinear Laser Spectroscopy of Bismuth at COLLAPS- The complementarity of optical and non-optical laser spectroscopy techniques.

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Bunched-beam collinear laser spectroscopy was added to the extensive list of techniques used to study the Bi isotopic chain at ISOLDE. The atomic hyperfine splitting in the transition previously employed for in-source laser spectroscopy was not fully resolved in the in-source measurements. As Bi is a well-known example of the Bohr-Weisskopf effect or “Hyperfine anomaly”, it became apparent that to maximize the information available from the in-source campaign (IS608) a number of high-resolution measurements would be beneficial. In order to fix the hyperfine anomaly parameter in the fitting of the in-source data, systematic measurements of similar nuclear states are required. With this objective, high-resolution measurements were performed at COLLAPS for $^{209,208,205,201,199,198,197,196}\text{Bi}$. The results from these high-resolution scans will be presented and future opportunities to fully exploit this often underutilized nuclear structure observable, “the hyperfine anomaly” will be explored.

On behalf of the IS608 collaboration.

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