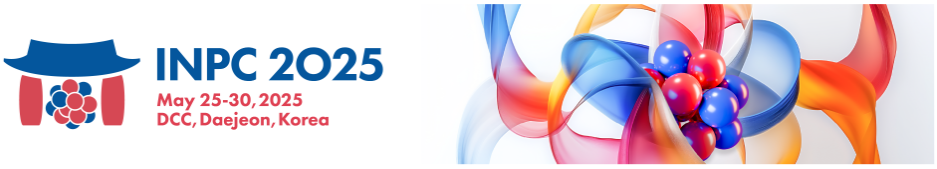

Contribution ID: **182** Type: **Contributed Oral Presentation**

Producing Dubnium with a 50Ti beam: A first step towards discovering new elements with the Berkeley Gas-filled Separator and refining the Db and Rf decay properties

Tuesday, 27 May 2025 11:40 (15 minutes)

For many years, element discoveries have become synonymous with a 48Ca beam on an actinide target. However, as we move towards discoveries of elements heavier than 118 we have to find new beam-target combinations and use beams of heavier proton numbers. At Berkeley Lab we investigate the use of 50Ti as such an alternative.
As a first step in this development, we produced 50Ti11+ with the VENUS source and used it to make 257Db using the 50Ti+209Bi fusion evaporation reaction in the Berkeley Gas-filled Separator (BGS). During the experiment, we were able to identify 257Db events through EVR-a-a coincidences and EVR-fission coincidences using our newly commissioned detector: the SuperHeavy RECoil detector (SHREC). As a second part in this experiment, we ramped our beam energy by 24 MeV and looked into the 3n, 4n and pxn channels of the 50Ti+209Bi reaction. The results of this experiments and their impact on what we know about the relevant Dubnium and Rutherfordium isotopes will be presented.

Primary author: Dr LYKIARDOPOULOU, Marilena (Lawrence Berkeley National Lab)

Co-authors: ARD, Allan; Prof. RUDOLF, Dirk; Dr LEISTENSCHNEIDER, Erich; Dr GATES, Jacklyn; Dr PORE, Jennifer; GOODING, John; Dr STOYER, Mark; GREBO, Mirza; Dr ORFORD, Rodney

Presenter: Dr LYKIARDOPOULOU, Marilena (Lawrence Berkeley National Lab)

Session Classification: Parallel Session

Track Classification: Nuclear Reactions