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A Few ECRIS Developments at LBNL

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In addition to the ongoing investigation of bremsstrahlung radiation produced by energetic electrons in the superconducting ECR ion source VENUS, the LBNL ion source group has pursued several other research topics since 2015 to explore potential advancements of ECR ion sources. Three of these activities are investigations into the benefits of non-cylindrical plasma chambers, the development of new high-temperature ovens that will efficiently produce the intense, metallic ion beams necessary for superheavy element production at the 88-Inch Cyclotron facility, and the finalization of the conceptual and engineering design of the superconducting NbTi magnet structure for the 4th generation, 45 GHz ECR ion source MARS-D. This article summarizes and briefly discusses the highlights of these ECRIS developments.

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