

Abstract Submitted  
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**Systematic Study of Technetium Production by Proton-Induced Reactions on Molybdenum**<sup>1</sup> EDWARD LAMERE, Univ of Notre Dame, GWENAELE GILARDY, ZACH MEISEL, MICHAEL MORAN, MICHAEL SKULSKI, MANOEL COUDER, University of Notre Dame — Recent shortages in the worldwide supply of <sup>99m</sup>Tc have sparked interest in developing alternative production methods which do not rely on fission based <sup>99</sup>Mo. The direct production of <sup>99m</sup>Tc from proton induced reactions on enriched <sup>100</sup>Mo targets is one such approach. With this approach, <sup>99m</sup>Tc must be chemically extracted from the irradiated target and therefore radiopharmaceuticals will contain a mixture of all Tc-species produced from the proton bombardment. Commercial viability of cyclotron-produced <sup>99m</sup>Tc will depend on a number of factors including, production yield, radiochemical purity, and specific activity. Reactions on trace impurities in the targets has been shown to impact these factors dramatically. Precise cross-section measurements for not just the main reaction, <sup>99m</sup>Tc(p,2n), but for all Mo + p reactions that lead to Tc or Mo species are required for proper assessment of this <sup>99m</sup>Tc production technique. We will introduce a systematic study of proton-induced reactions on 92, 94-98, 100 Mo currently being performed at the University of Notre Dame. First results of <sup>96</sup>Mo + p reactions will be presented.

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