

Abstract Submitted  
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**Systematic measurements of proton-induced reactions on enriched molybdenum**<sup>1</sup> EDWARD LAMERE, GWENAELLE GILARDY, ZACH MEISEL, MICHAEL MORAN, CHRISTOPHER SEYMORE, MICHAEL SKULSKI, ANTONIO SIMONETTI, MANOEL COUDER, University of Notre Dame — Between 2008 and 2010, shortages in the world-wide supply of Mo highlighted weaknesses in the current fission-based production method of <sup>m</sup>Tc, a critical medical isotope. This crisis sparked interest in developing the direct production of <sup>m</sup>Tc from proton-induced reactions on enriched Mo targets as an alternative. One complication with this method is that <sup>m</sup>Tc must be chemically extracted from the irradiated target. Therefore, radiopharmaceuticals produced from proton bombardment will contain a mixture of all Tc-species with open production channels, affecting radiochemical purity, specific activity and total production yield of <sup>m</sup>Tc—factors critical for the feasibility of this production method. Reactions on trace impurities in the enriched targets have been shown to impact these factors dramatically. Precise cross-section measurements for all Mo +p reactions that lead to Tc or Mo species are required for proper assessment of this production technique. Cross-section measurements for the main reaction of interest, <sup>m</sup>Tc(p,2n), have been performed in recent years, however, other reactions producing Tc have been mostly neglected. We will introduce a systematic study of proton-induced reactions on 92, 94-98, 100 Mo currently being performed at Notre Dame. Preliminary results will be presented.

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Edward Lamere  
University of Notre Dame

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