

Abstract Submitted  
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**Cross sections for reactions in explosive H burning from transfer reactions at 10 MeV/u**<sup>1</sup> L. TRACHE, T. AL-ABDULLAH, A. BANU, C. FU, C.A. GAGLIARDI, A.M. MUKHAMEDZHANOV, G. TABACARU, R.E. TRIBBLE, Y. ZHAI, Texas A&M University, F. CARSTOIU, V. BURJAN, INP, Rez, Czech republic — A review will be given of the methods for nuclear astrophysics from transfer reactions with stable and radioactive beams at TAMU. We'll list the proton transfer reactions used to determine the cross sections for radiative p-capture reactions for H burning. Then we'll show how one can use neutron transfer and charge symmetry to obtain information for mirror nuclei. From experiments we extract structure information (spectroscopic factors or ANCs) by comparing with DWBA calculations. Recognizing that in all these indirect methods it is of capital importance to have reliable DWBA calculations, we made extensive elastic scattering studies with p-shell nuclei projectiles around 10 MeV/u to find a global procedure to determine optical model potentials using semi-microscopic double folding models with various effective NN-interactions. This is particularly important for reactions induced by rare nuclei beams. We'll show how using the JLM interaction we had very good success in predicting/describing elastic scattering for a large number of RNBs: <sup>7</sup>Be, <sup>8</sup>B, <sup>11</sup>C, <sup>12</sup>N, <sup>13</sup>N, etc. We intend to extend our studies to sd-shell nuclei, using similar methods.

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