

# $^2\text{H}(^{18}\text{F},\text{p})^{19}\text{F}$ Study at HRIBF

Raymond L. Kozub  
Tennessee Technological University

ORNL: D. W. Bardayan, J. C. Blackmon,  
C. J. Gross, D. E. Pierce,  
D. Shapira, M. S. Smith

Yale: P. D. Parker

Ohio U: C. R. Brune

UNC: A. E. Champagne, L. Sahin

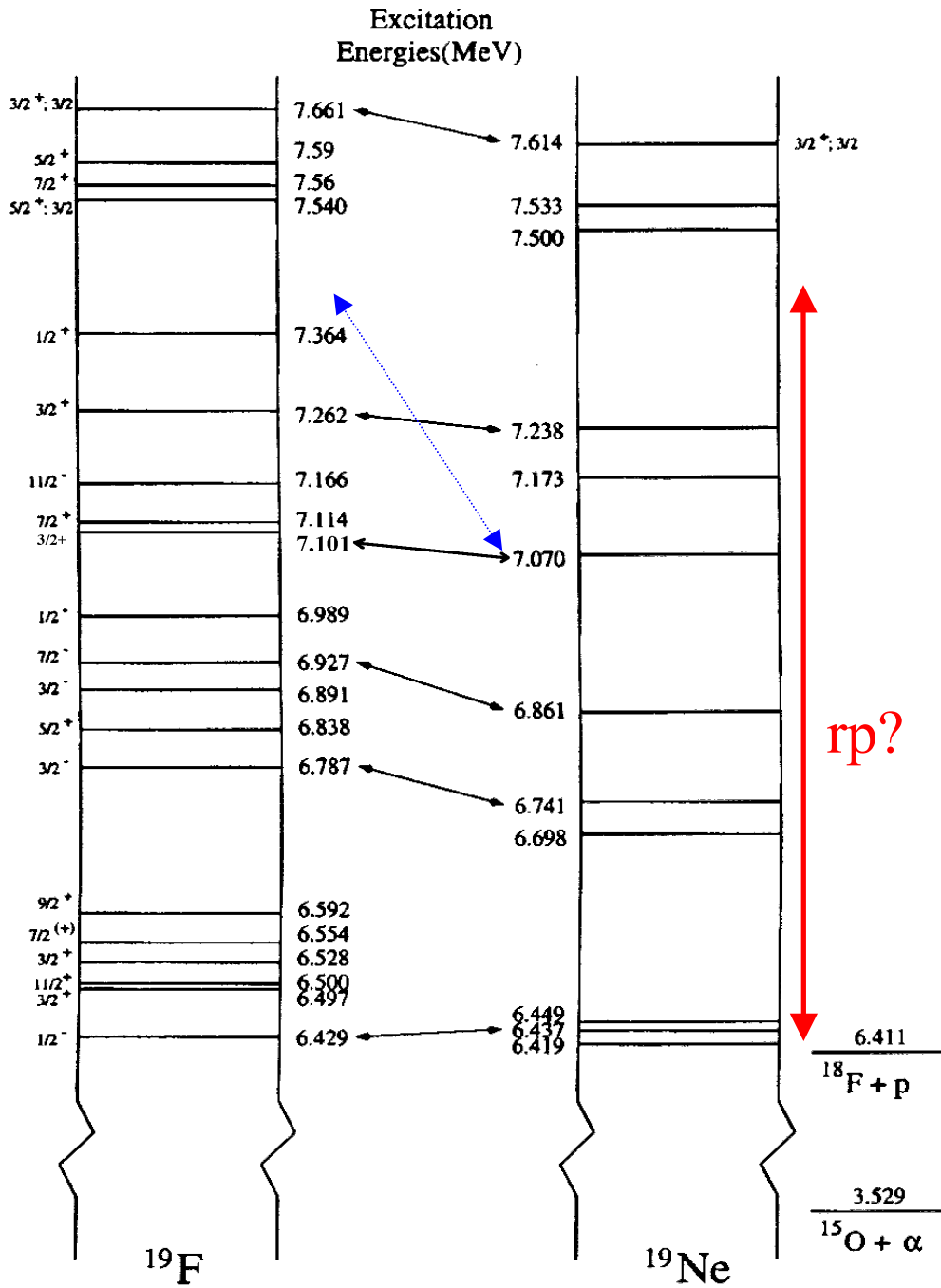
Mines: U. Greife, C. C. Jewett,<sup>†</sup>  
R. J. Livesay<sup>†</sup>

Edinburgh: T. Davinson, P. J. Woods

Rutgers: J. A. Cizewski, J. Thomas<sup>†</sup>

TTU: J. M. Cox,<sup>†</sup> B. A. Johnson,<sup>†</sup>  
C. D. Nesaraja, B. H. Moazen,<sup>†</sup>  
J. P. Scott<sup>†</sup>

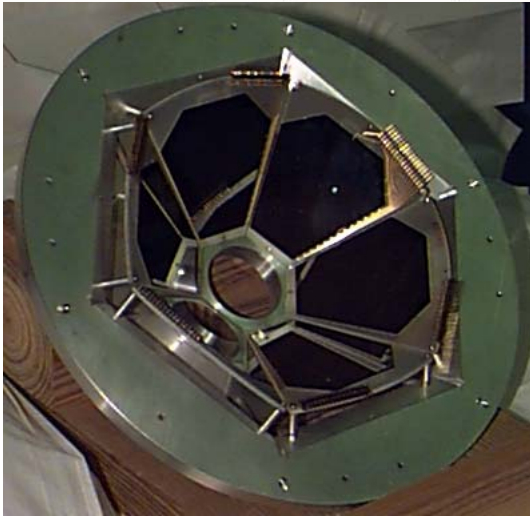
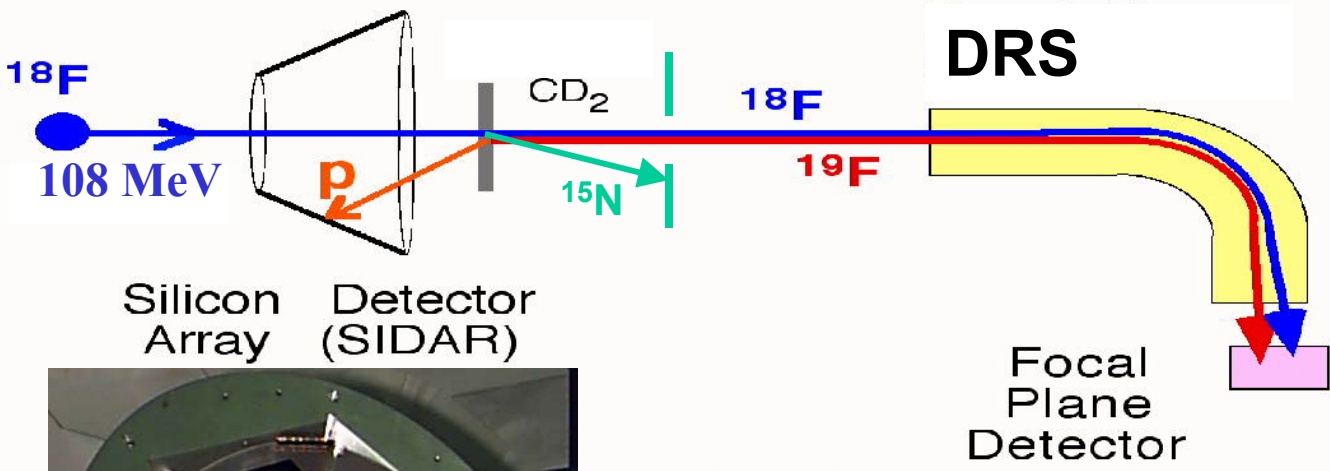
<sup>†</sup>Students



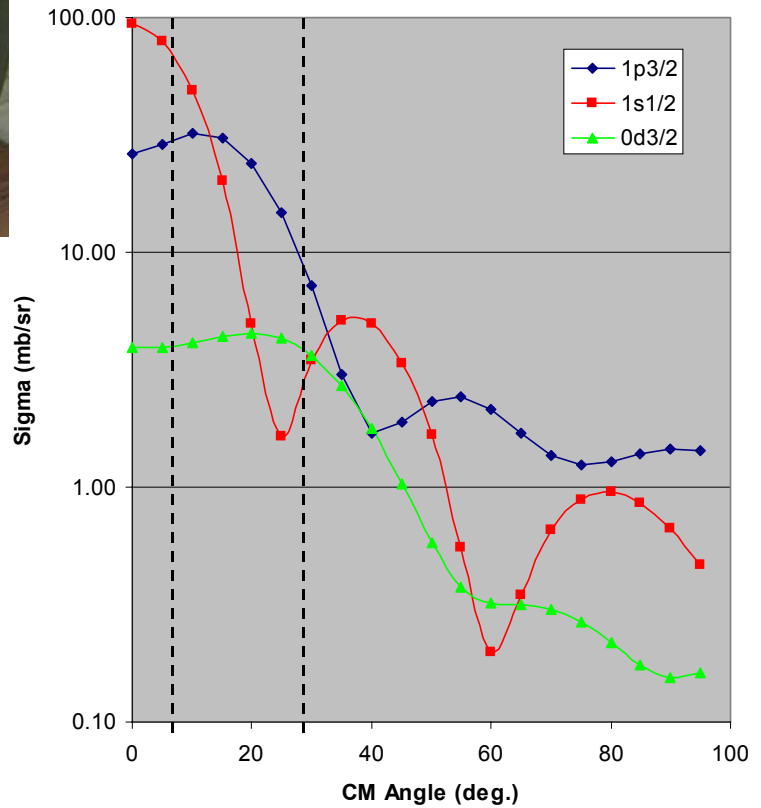
Utku, *et al.*, *PRC* **57**, 2731 (1998).

Fortune and Sherr, *PRC* **61**, 024313 (2000).

# Setup: ${}^2\text{H}({}^{18}\text{F},\text{p}){}^{19}\text{F}$ at HRIBF at ORNL



${}^{18}\text{F}(\text{d},\text{p}){}^{19}\text{F}(6.6)$  at 6A MeV  
DWBA

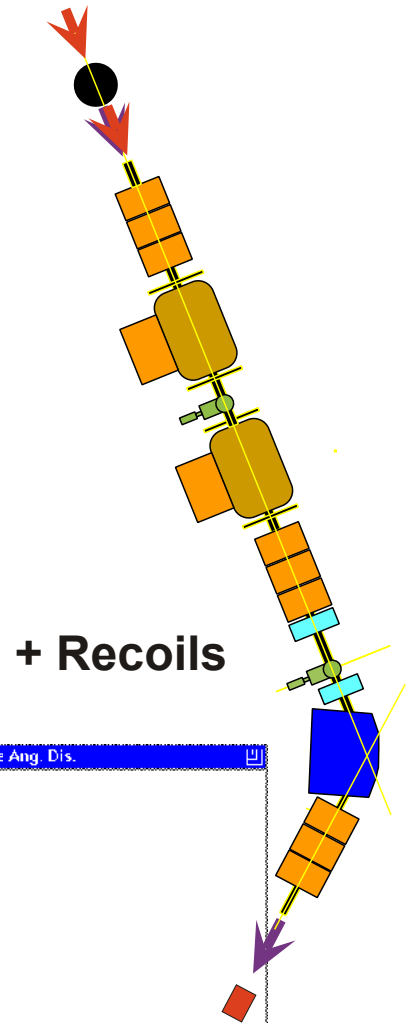
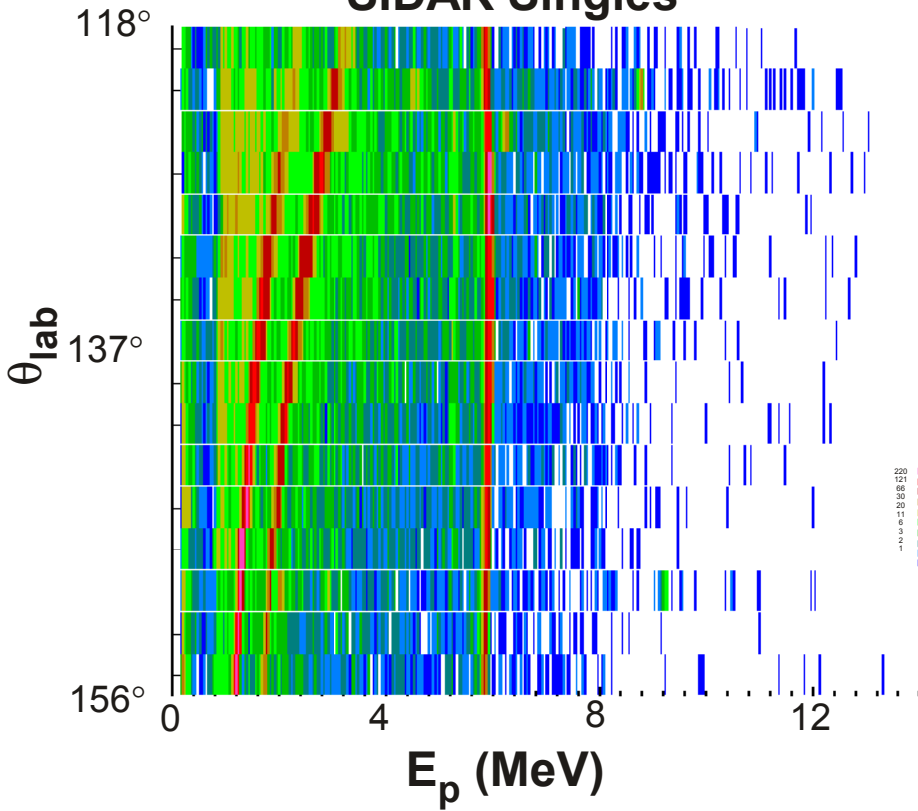


$$\theta_{\text{lab}} = 116^\circ - 160^\circ$$

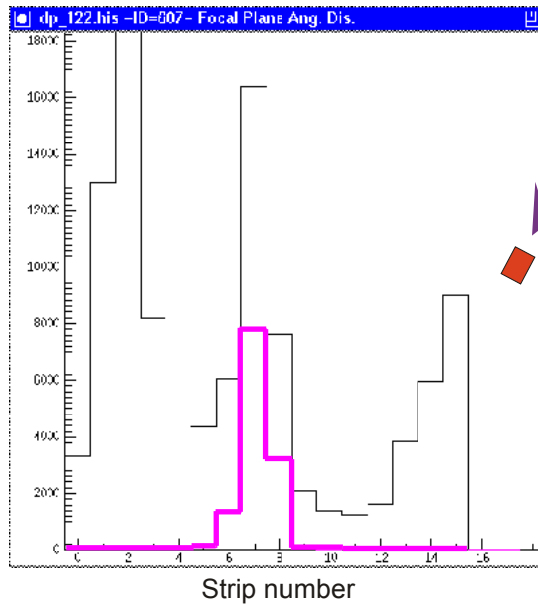
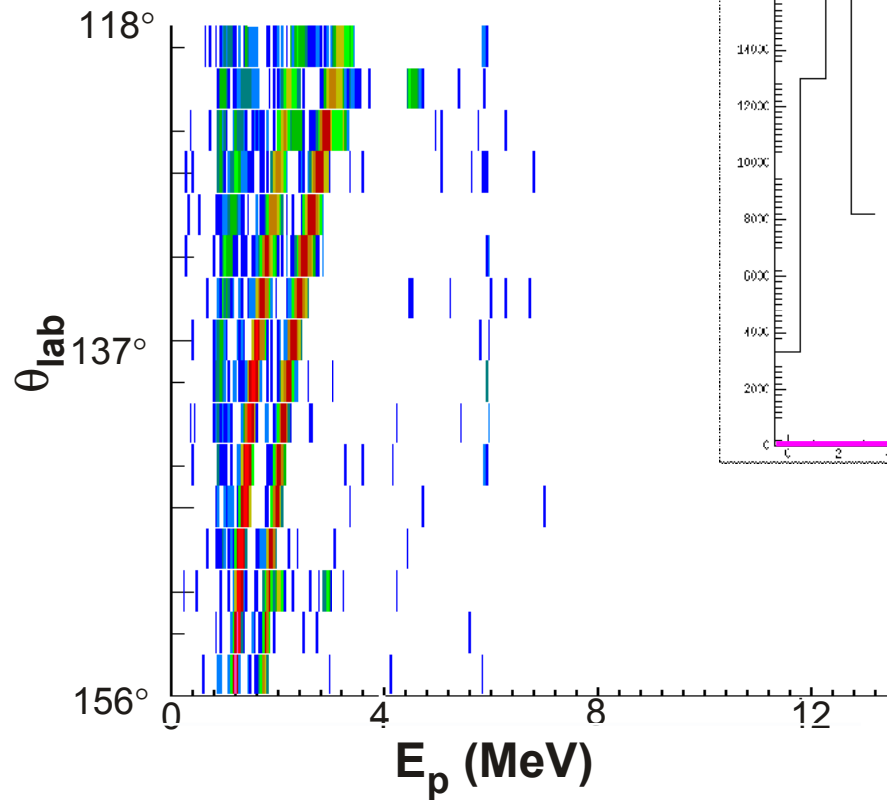
$$\theta_{\text{CM}} = 7^\circ - 29^\circ$$

# ${}^2\text{H}({}^{18}\text{O},p){}^{19}\text{O}$ at 6 MeV/u

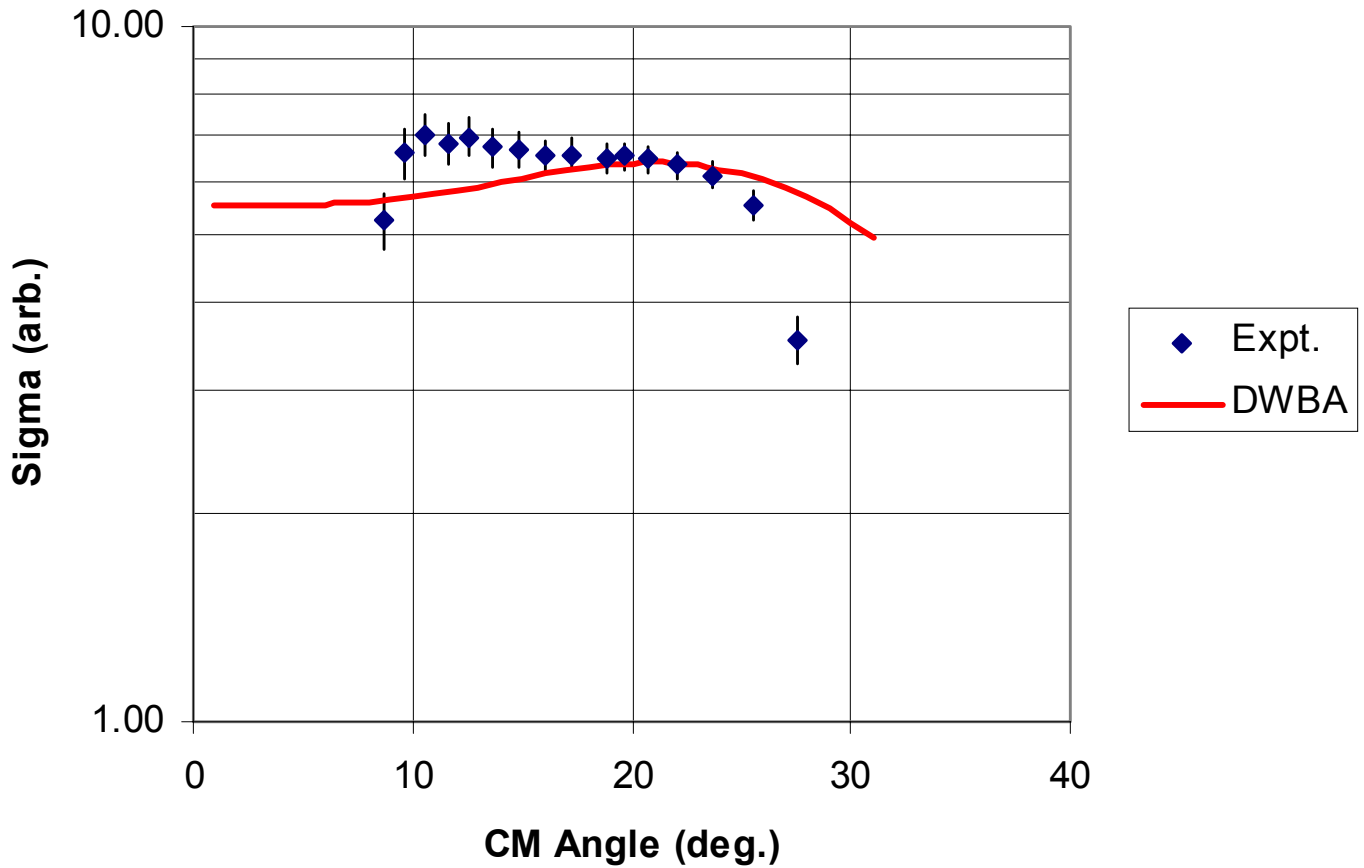
## SIDAR Singles



## = Coincidences

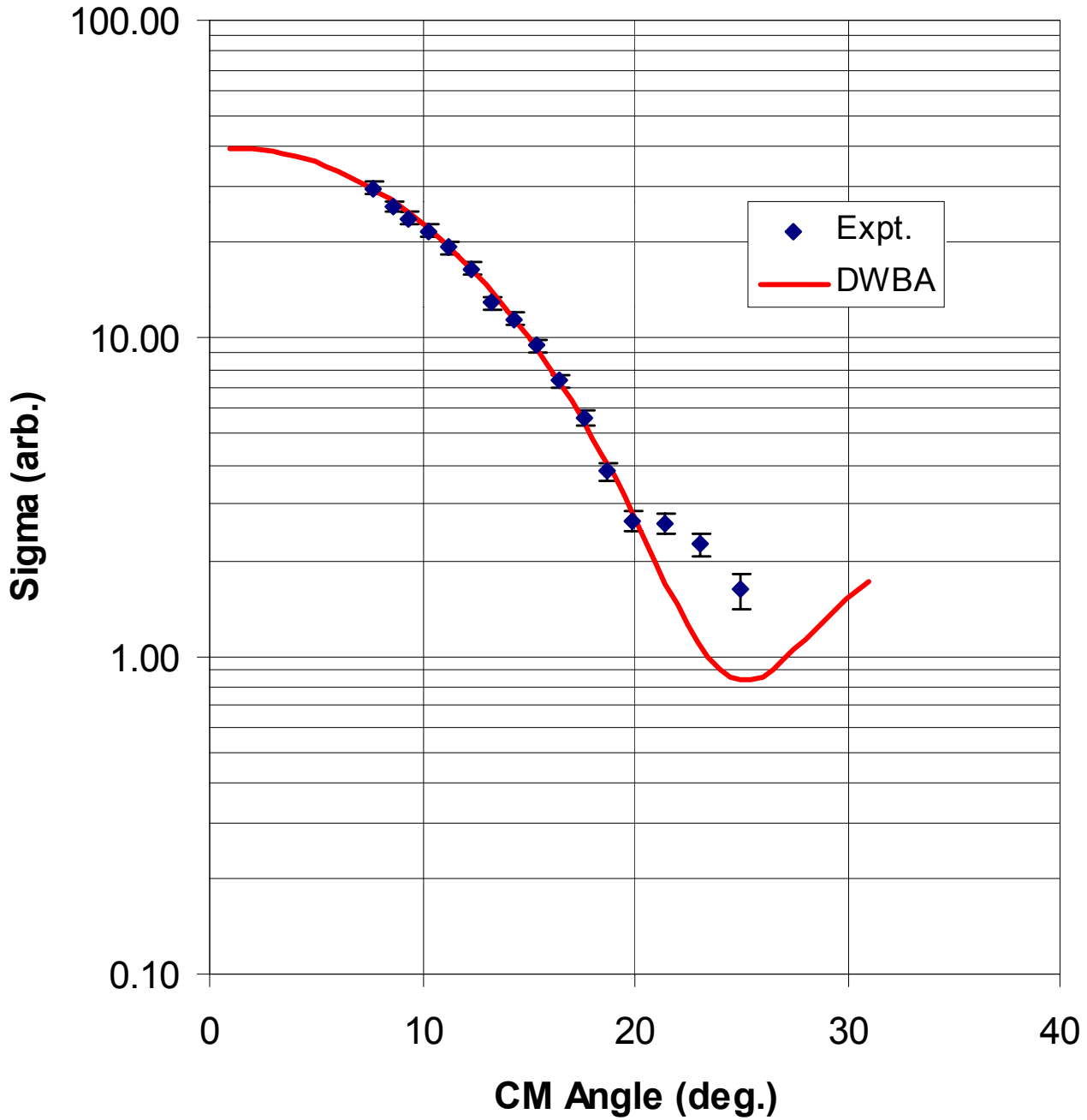


$^{18}\text{O}(d,p)^{19}\text{O}(\text{g.s.}, 5/2^+ + 0.096 \text{ MeV}, 3/2^+)$   
6A MeV



~Same as Wiza and Middleton, PR **143**, 676 (1966)

$^{18}\text{O}(d,p)^{19}\text{O}(1.47\text{ MeV}, 1/2^+)$   
6A MeV



Q-value same as 7.94 MeV in  $^{19}\text{F}$