

## Data assessment on cross section data for $^{10}\text{B}(\alpha,\alpha)^{10}\text{B}$ backscattering up to 9 MeV

S. Tietz and M. Mayer

*Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, 85748 Garching, Germany*

Only three authors have measured cross sections for alpha backscattering from 10-boron. Their publications have been sighted. Only one of these measurement was found in IBANDL. All other suitable data have been taken from EXFOR and were submitted to IBANDL. A complete list can be found at the end in table 1.

The existing cross section data for  $\alpha$ -backscattering from 10-boron are very scarce. A comparison of the data from Mo et al. [2] and McIntyre et al. [3] is shown in Fig. 1. The shape of the curves is similar, but the quantitative agreement is poor. The data were recorded at slightly different angles. The angular dependence at two different energies is shown in Fig. 2. Although there is some angular dependence, it seems improbable that the difference between Mo and McIntyre can be explained by the different scattering angles. The data of McIntyre approach the Rutherford cross section at low energies. Additional experimental data are necessary in order to clarify the differences between the data.

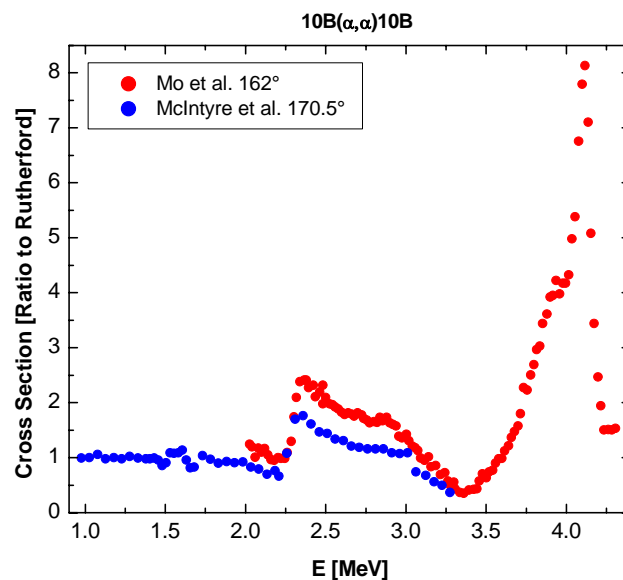


Fig. 1: Comparison of the data by Mo [2] and McIntyre [3] at 162° and 170.5° scattering angle.

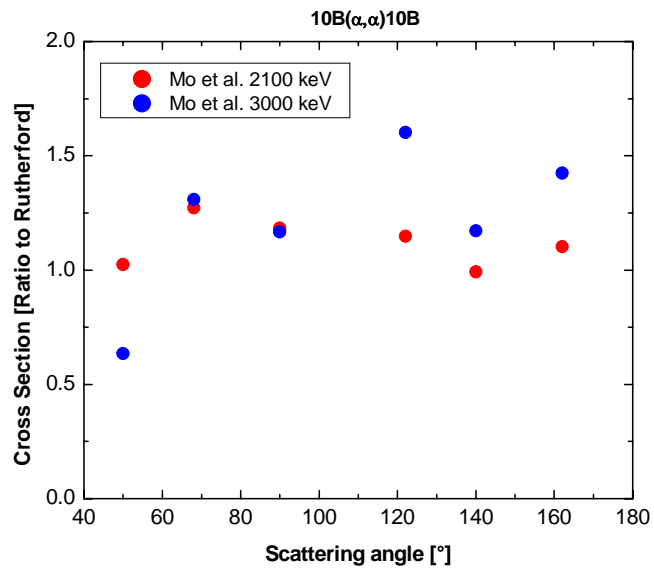


Fig. 2: Angular dependence of the cross-section at 2100 and 3000 keV. From [2].

Table 1: Publications containing  $^{10}\text{B}(a,a)^{10}\text{B}$  backscattering data.

Energy Range (MeV)	Angle in the Lab.(°)	Error	Data Presentation	Reference	IBANDL	EXFOR	Action
5.0-30.0	57.4	-	Graph	David [1]	<i>data unsuitable for RBS due to angle</i>	F0220002	
2.0-4.3	50	-	Graph	Mo/Weller [2]	<i>data unsuitable for RBS due to angle</i>	F0486002	Data converted from EXFOR to IBANDL
2.0-4.3	68	-	Graph	Mo/Weller [2]	<i>data unsuitable for RBS due to angle</i>	F0486002	Data converted from EXFOR to IBANDL
2.0-4.3	90	-	Graph	Mo/Weller [2]	<b>data missing</b>	F0486002	Data converted from EXFOR to IBANDL
2.0-4.3	122	-	Graph (2x)	Mo/Weller [2]	<b>data missing</b>	F0486002	Data converted from EXFOR to IBANDL
2.0-4.3	140	-	Graph	Mo/Weller [2]	<b>data missing</b>	F0486002	Data converted from EXFOR to IBANDL
2.0-4.3	162	-	Graph (2x)	Mo/Weller [2]	<b>data missing</b>	F0486002	Data converted from EXFOR to IBANDL
1.0-3.3	170.5	7%	Graph	McIntyre Jr. [3]	data included	C0090002	

### References

- [1] P. David et al.: Nucl. Phys. A182 (1972) 234
- [2] T. Mo and H.R. Weller: Phys. Rev. C8 (1973) 972
- [3] L.C. McIntyre Jr. et al.: Nucl. Instr. Meth. B64 (1992) 457