

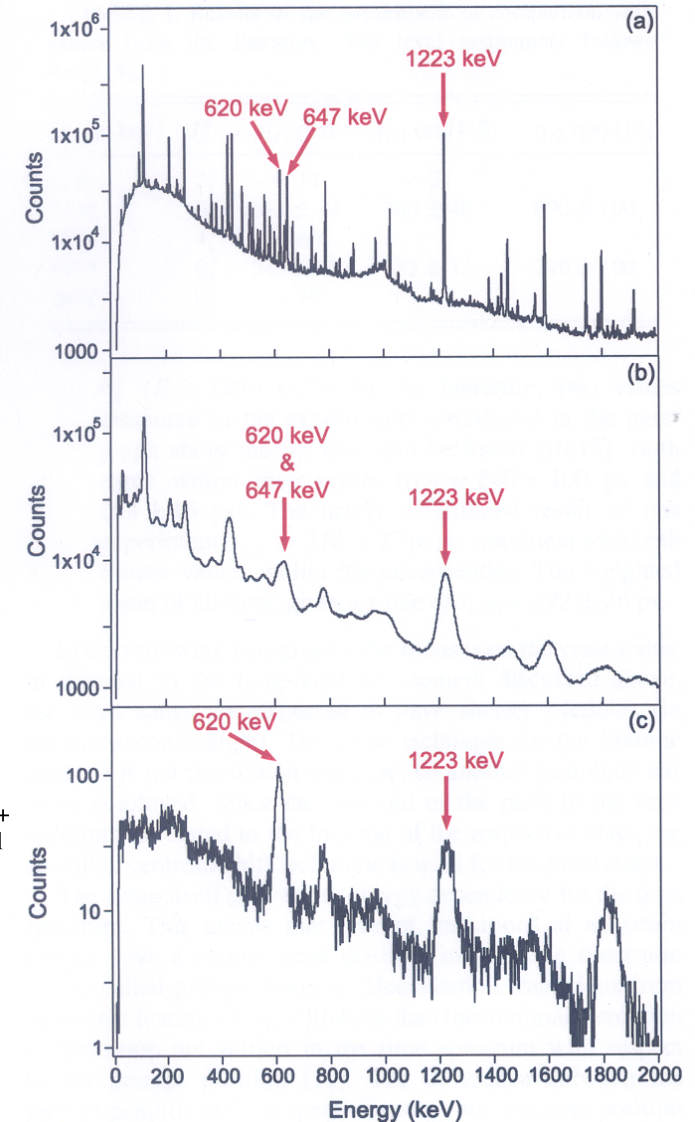
Lifetime measurement of excited states in the shape-phase-transitional nucleus ^{98}Zr .

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Phys. Rev. C82 044310 (2010)

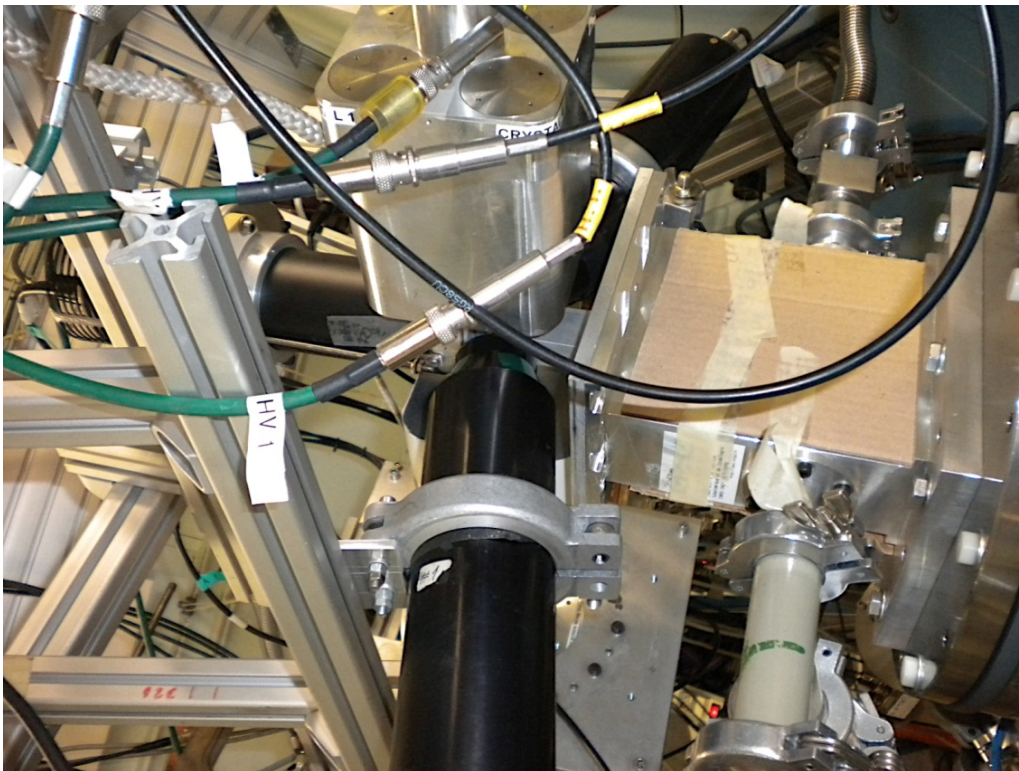
Thermal neutron induced fission of ^{235}U at Lohengrin (ILL) using a $400\mu\text{g}/\text{cm}^2$ ^{235}U target. The β - γ - γ method of H. Mach was applied using a plastic scintillator, LaBr detectors and a Clover detector.

Singles
Clover



Singles
LaBr₃(Ce)

Coincident
with $6_1^+ \rightarrow 4_1^+$



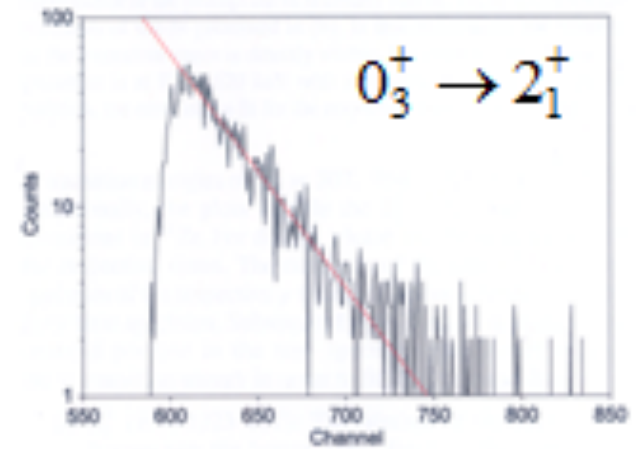
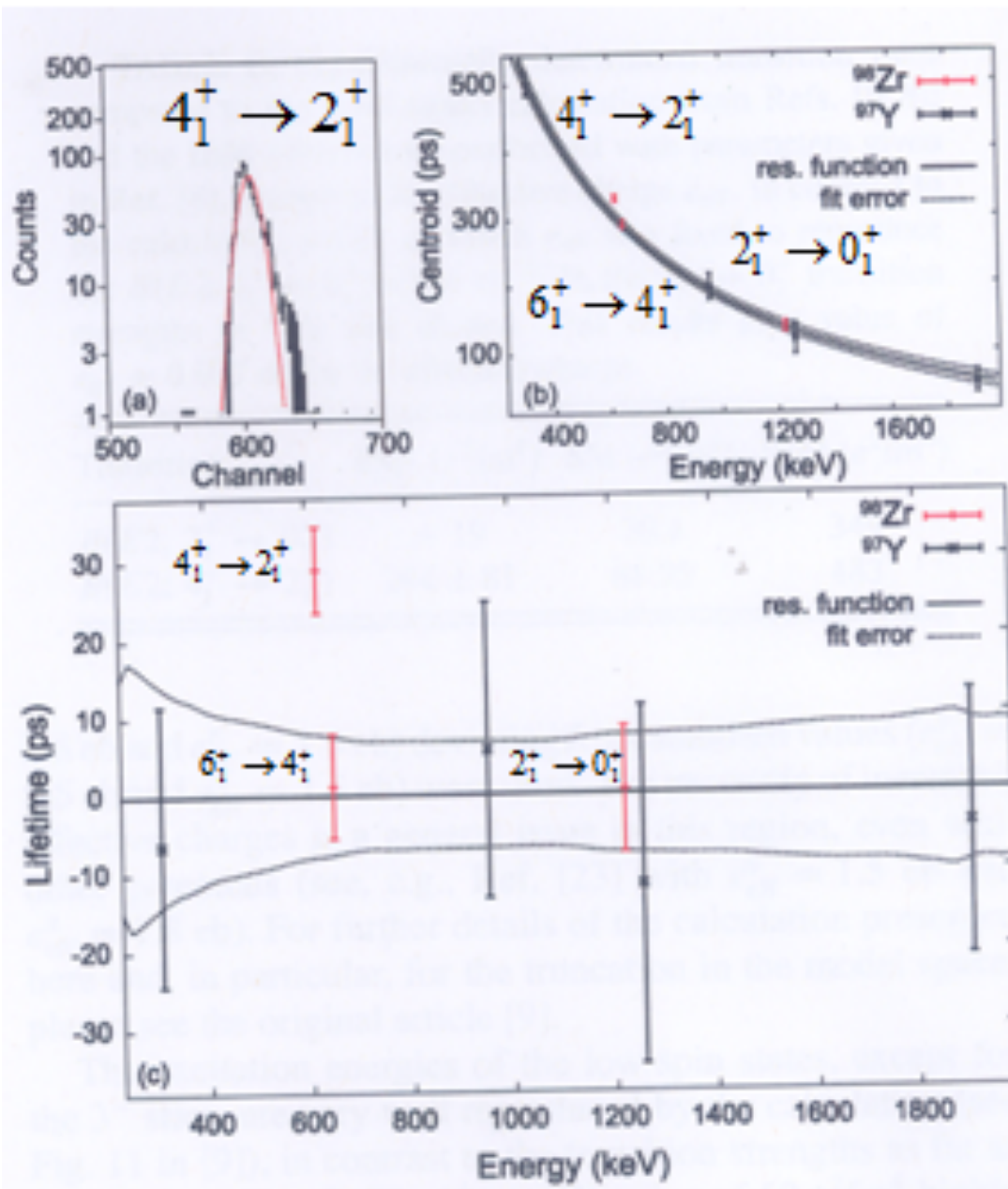


TABLE I. Results of the experiment in comparison with values from the literature. The level assignment follows Ref. [15].

E_{level} (keV)	J_{π}^{α}	$t_{1/2}$ (ps)	$t_{1/2}$ (ps) [10]	$t_{1/2}$ (ps) [13]
1223	2_1^+	< 11	< 21	
1436	0_3^+	611 ± 33	860 ± 40	690 ± 100
1843	4_1^+	20 ± 6		
1859	0_4^+	318 ± 27	283 ± 15	240 ± 100
2491	6_1^+	< 10		

[10] H. Mach et al. NIMA280 49 (1989)

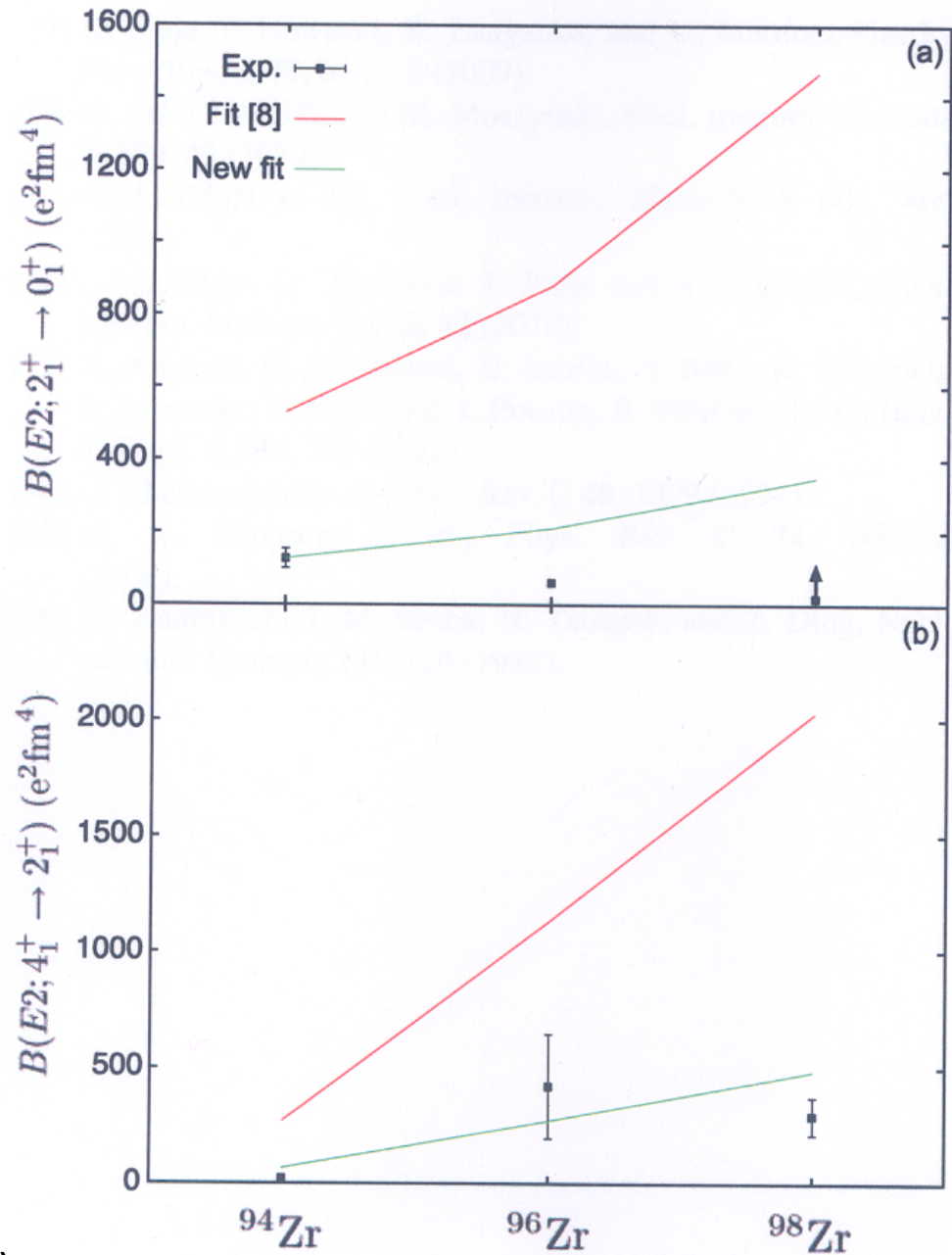
[13] K. Kawabe et al. Zeit. F. Phys A304, 293 (1982).

$$P(E_{\gamma}) = \frac{a}{E_{\gamma} + b} + c$$

$$B(E2) \sim (eN)^2$$

In red is given the fit based on ^{100}Zr with no $Z=40$ subshell and $e=0.159$.
 In blue a $Z=40$ subshell leads to a Effective charge of $e=0.077$ causing the strong reduction of N

Transition	Exp. ($e^2\text{fm}^4$)	SM ($e^2\text{fm}^4$)	IBM ($e^2\text{fm}^4$)
$B(E2; 2_1^+ \rightarrow 0_1^+)$	> 19	70.4	349
$B(E2; 4_1^+ \rightarrow 2_1^+)$	294 ± 81	68.95	483



SM: K. Sieja et al. PRC79 064310 (2009)

IBM: based on J. Garcia-Ramos et al., Eur. Phys. J. A26, 221 (2005)