

# III DATA EVALUATION

## Progress on Nuclear Data Evaluation at Nuclear Physics Laboratory of Jilin University

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### 1 $A = 54$ Mass Chain

The nuclei involved in the evaluation of nuclear structure and decay data for  $A = 54$  mass chain are  $^{54}\text{K}$ ,  $^{54}\text{Ca}$ ,  $^{54}\text{Sc}$ ,  $^{54}\text{Ti}$ ,  $^{54}\text{V}$ ,  $^{54}\text{Cr}$ ,  $^{54}\text{Mn}$ ,  $^{54}\text{Fe}$ ,  $^{54}\text{Co}$ ,  $^{54}\text{Ni}$ ,  $^{54}\text{Cu}$ . The evaluation for  $A = 54$  ( published in Nuclear Data Sheets, Vol. 50, 255 (1987) ) has been revised by using the experimental data measured for nuclear reaction and decay studies. In comparison with the last evaluation there are some new data in the following data types ( sets ) :

$^{54}\text{K}$  adopted levels

$^{54}\text{Sc}$  adopted levels

$^{54}\text{Mn}$   $\epsilon$  decay

$^{52}\text{Cr}(n,\gamma)$ , ( pol  $n,\gamma$  )

$^{54}\text{Cr}$  coulomb excitation

$^{52}\text{Cr}(^{14}\text{O}, ^{14}\text{C})$

$^{54}\text{Fe}(n,n'\gamma)$

$^{54}\text{Fe}(^3\text{He},2pn\gamma)$

$^{54}\text{Fe}(^3\text{He},t)$   $E = 600 \sim 2000$  MeV

$^{54}\text{Cu}$  adopted levels

$^{54}\text{Ca}$  adopted levels

$^{54}\text{Ti}$  adopted levels

$^{52}\text{Cr}(\alpha, ^2\text{He})$

$^{54}\text{Cr}(d,d)$ ,  $(\alpha,\alpha)$

$^{46}\text{Ti}(^{12}\text{C},\alpha\gamma)$

$^{54}\text{Fe}(\pi,\pi')$

$^{54}\text{Fe}(p,p')$

$^{54}\text{Fe}(p,n)$

$^{54}\text{Fe}(\pi^+,\pi^-)$

In the text, the detailed level schemes, decay schemes, and related experimental data are presented. Adopted values for levels and  $\gamma$ -radiations, as well

as other nuclear properties are given.

The updated data for  $A = 54$  have been published in Nuclear Data Sheets, Vol. 68, 887 (1993).

## 2 $A = 52$ Mass Chain

The nuclear data sheets for  $A = 52$  published in 1989, ( Vol. 58, 677 ) has been updated using experimental nuclear structure and decay data. Many of the data sets presented in the evaluation are re-evaluated. In comparison with the last evaluation there are some new data in the following data types ( sets ) :

$^{52}\text{K}$ adopted levels	$^{52}\text{Ca}$ adopted levels
$^{52}\text{Sc}$ adopted levels	$^{52}\text{Ti}$ adopted levels
$^{51}\text{V}(n,\gamma)$ $E = \text{thermal}$	$^{52}\text{Mn}$ $\varepsilon$ decay(5.591 d)
$^{50}\text{Ti}(^{16}\text{O}, ^{14}\text{C})$	$^{50}\text{Cr}(\alpha, ^2\text{He})$
$^{51}\text{V}(\alpha, t)$	$^{52}\text{Cr}(\pi^+, \pi^+), (\pi^+, \pi^+')$
$^{52}\text{Cr}(n, n'\gamma)$	$^{52}\text{Cr}(p, p')$
$^{52}\text{Cr}(\alpha, \alpha')$	$^{52}\text{Fe}$ $\varepsilon$ Decay(8.275 h)
$^{52}\text{Fe}$ adopted levels	$^{52}\text{Co}$ adopted levels
$^{52}\text{Ni}$ adopted levels	

In the text, the information obtained in various reaction and decay experimental data are summarized and presented, together with adopted level schemes and properties.

The evaluated result has been sent to National Nuclear Data Center, U.S.A., and will be published in Nuclear Data Sheets.