

Systematic calculation of fission-fragment yields in the $74 \leq Z \leq 92$ region.

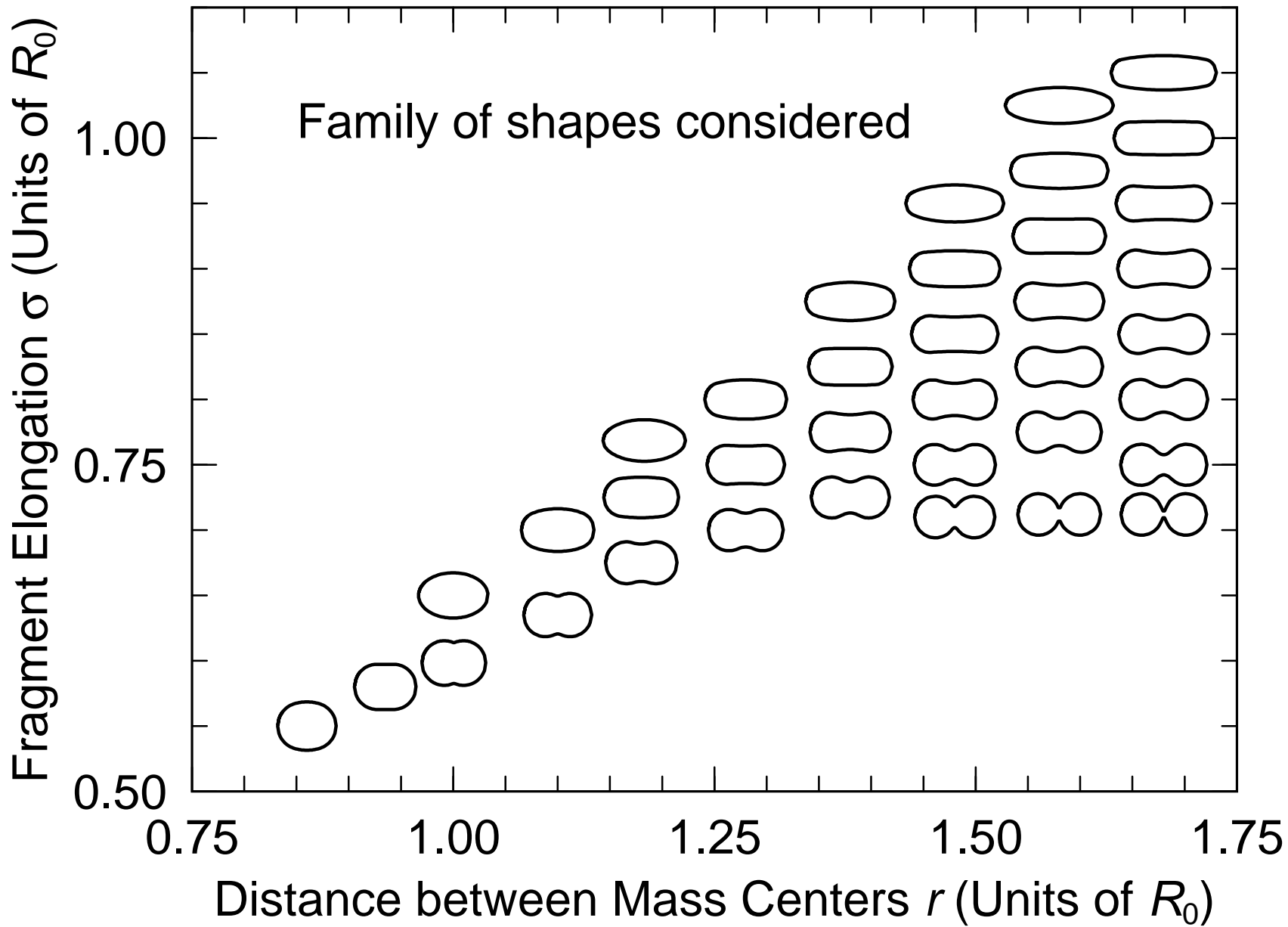
P. Möller (LANL) and J. Randrup (LBL)

Collaborators on this and other projects: W. D. Myers, H. Sagawa (Aizu), S. Yoshida (Hosei), T. Ichikawa(YITP), A. J. Sierk(LANL), A. Iwamoto (JAEA), S. Aberg (Lund), R. Bengtsson (Lund), S. Gupta (IIT, Ropar), and many experimental groups (e. g. K.-L. Kratz (Mainz), H. Schatz (MSU), A. Andreyev(University of York), ...)

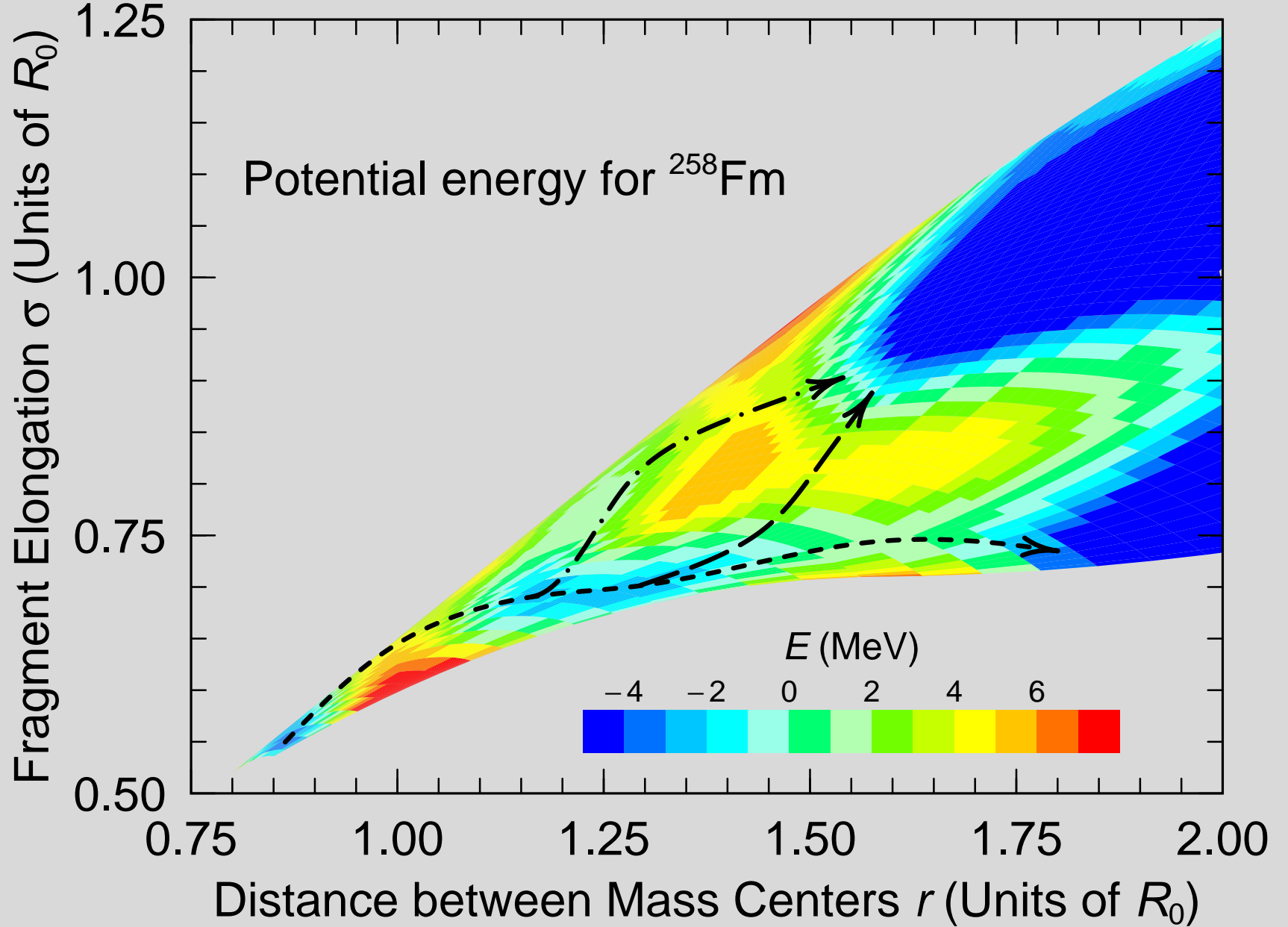
More details, figure files, papers, data on

<http://t2.lanl.gov/nis/molleretal>

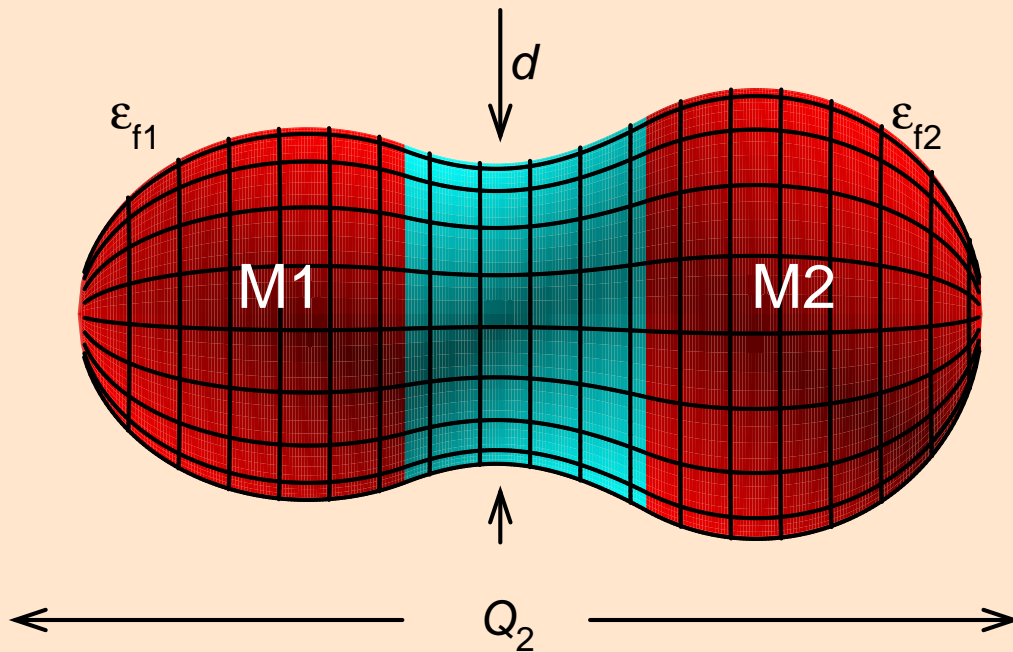
This is our new web site! The previous “private” one maintained locally was killed after more than 15 years in existence. The new one is officially managed by our laboratory computer people, although we program all the web pages (mostly by me).



From: [Journ. Phys. G: Nucl. Part. Phys. 20 \(1994\) 1681](#)



Five Essential Fission Shape Coordinates

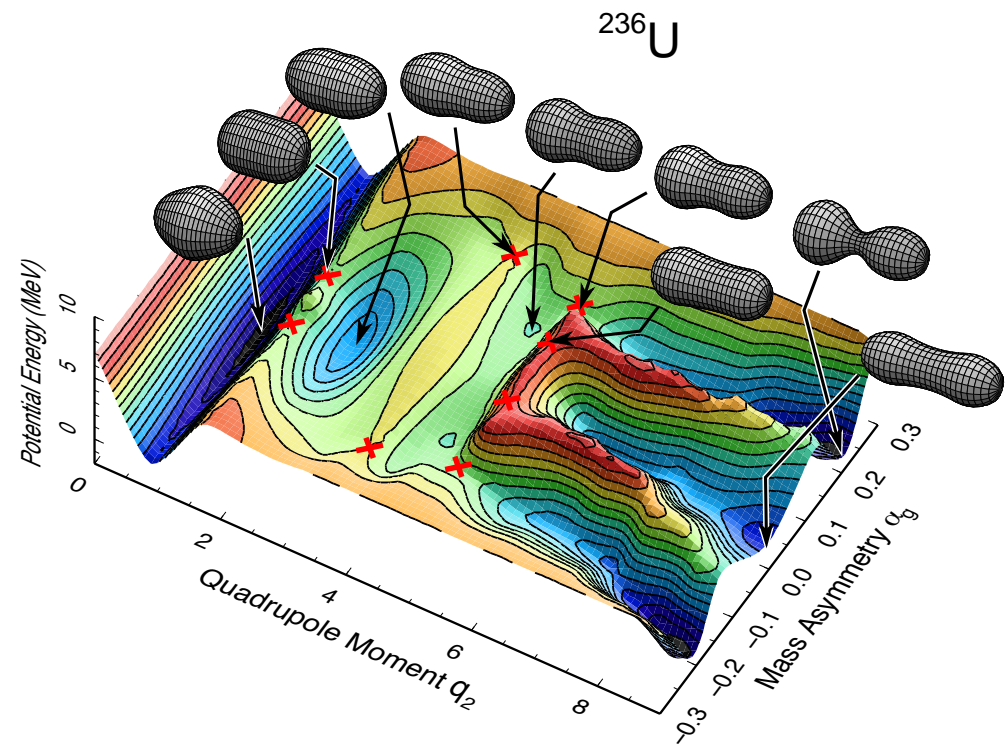
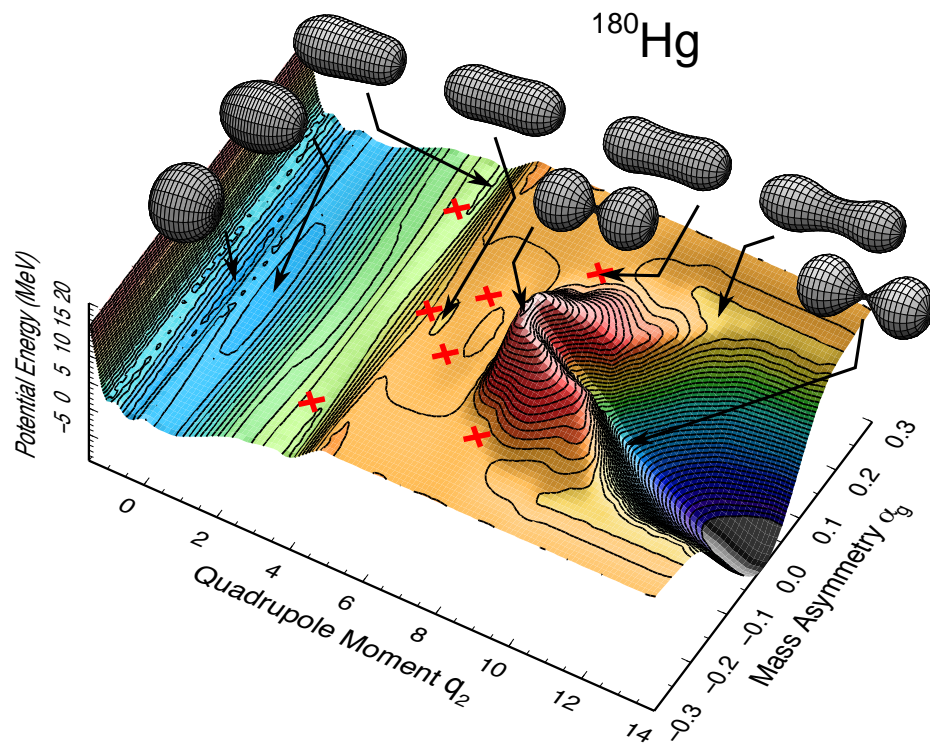


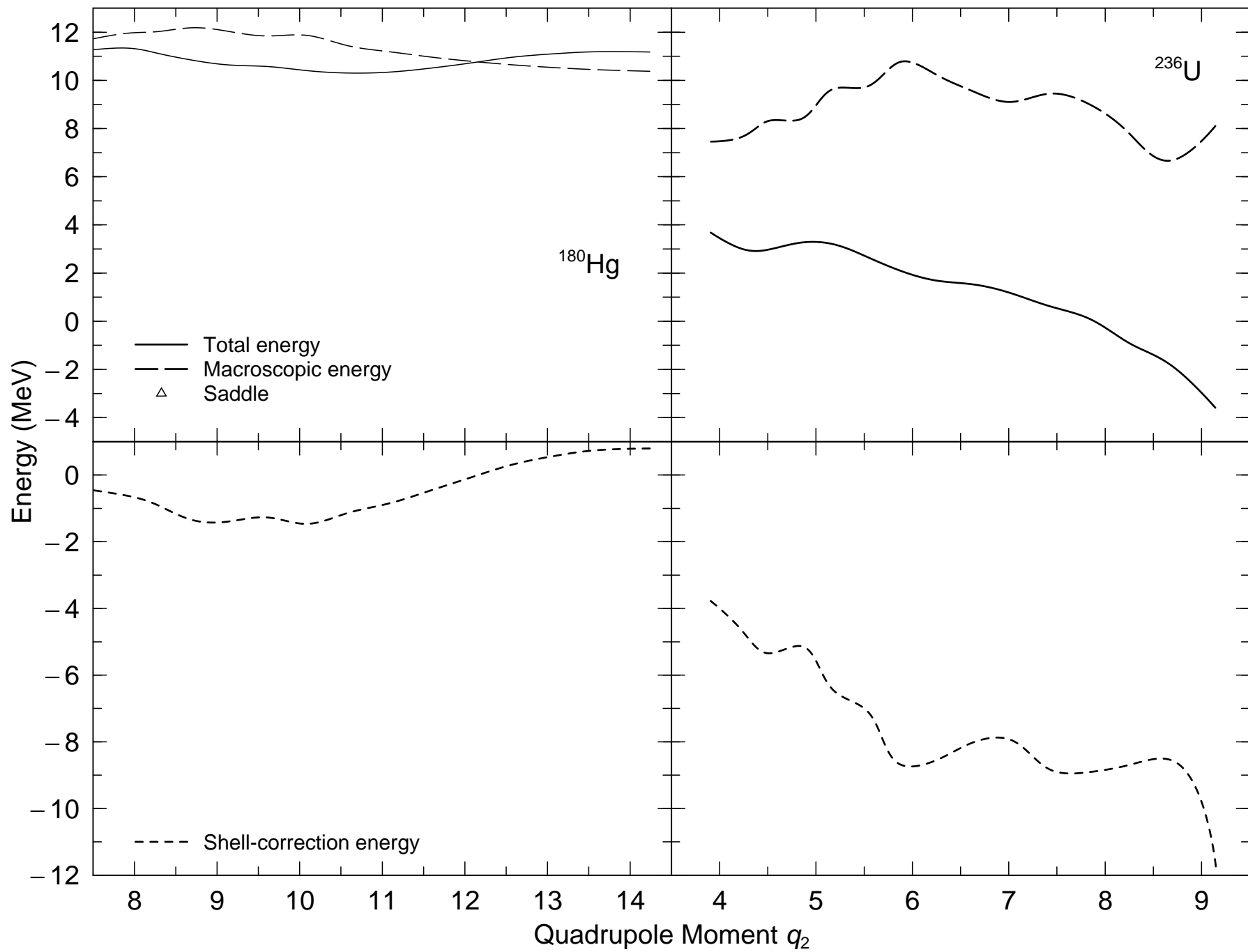
45	$Q_2 \sim$ Elongation (fission direction)
⊗	
35	$\alpha_g \sim (M1-M2)/(M1+M2)$ Mass asymmetry
⊗	
15	$\epsilon_{f1} \sim$ Left fragment deformation
⊗	
15	$\epsilon_{f2} \sim$ Right fragment deformation
⊗	
15	$d \sim$ Neck

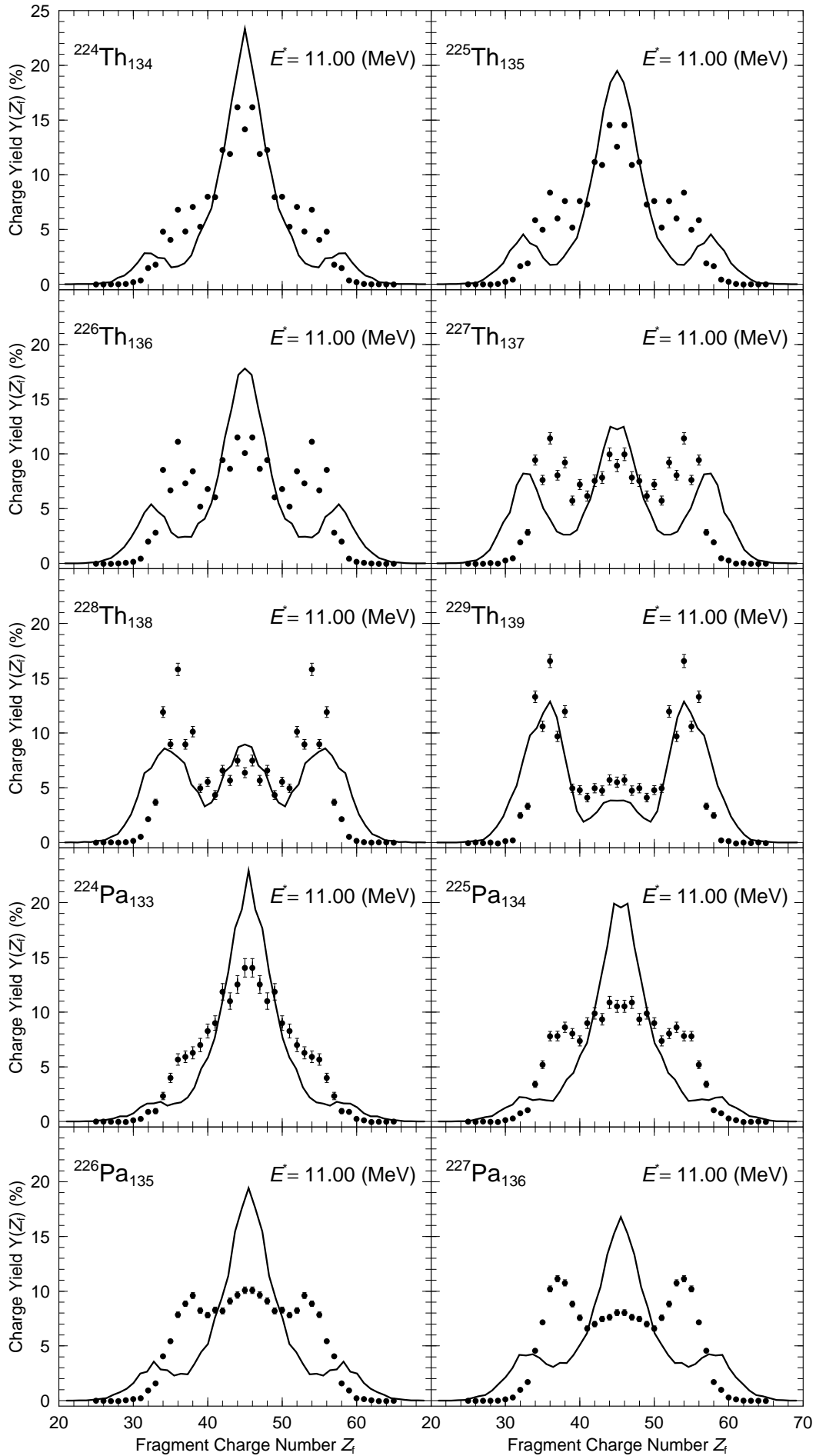
\Rightarrow 5 315 625 grid points – 306 300 unphysical points

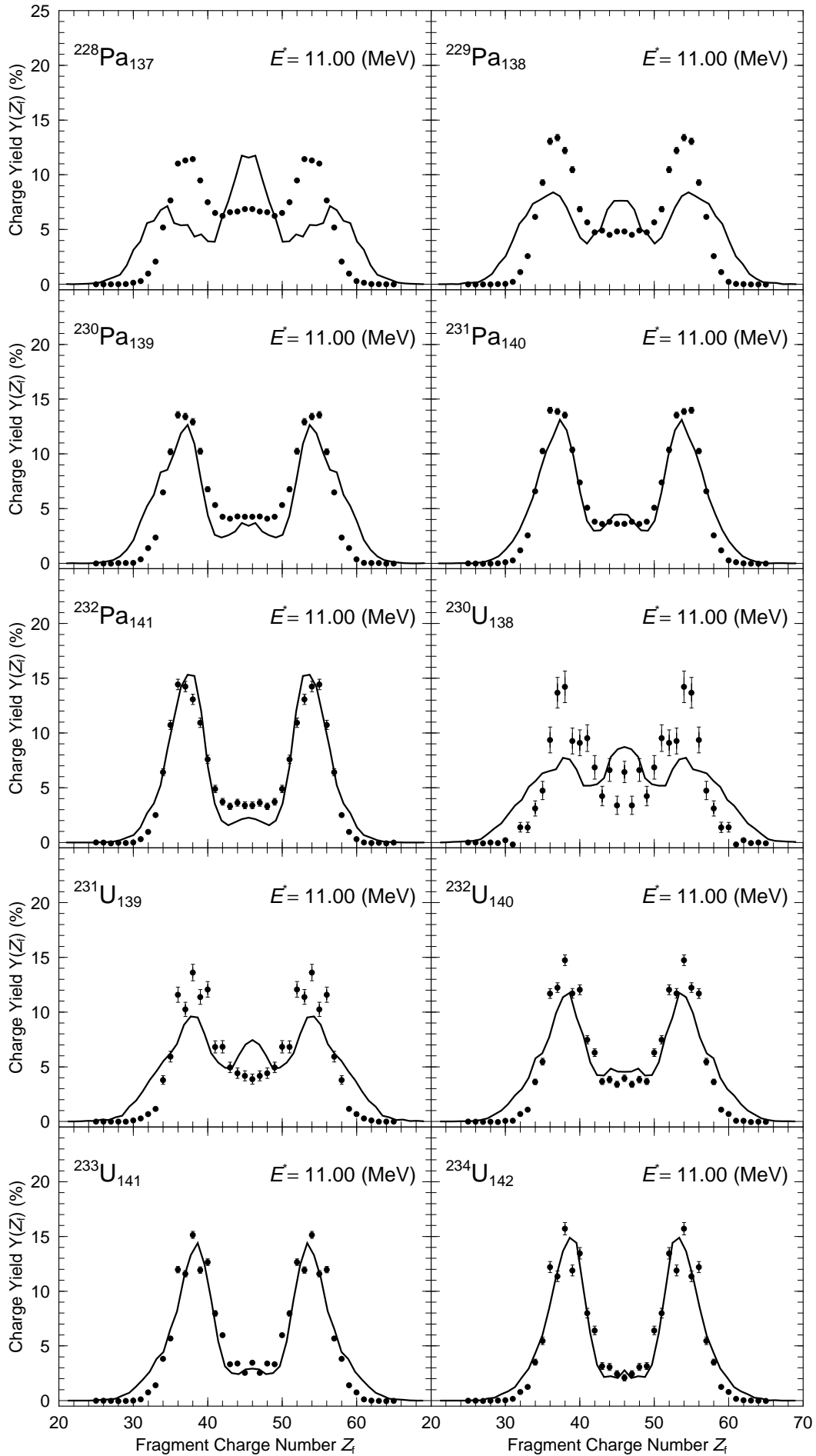
\Rightarrow **5 009 325 physical grid points**

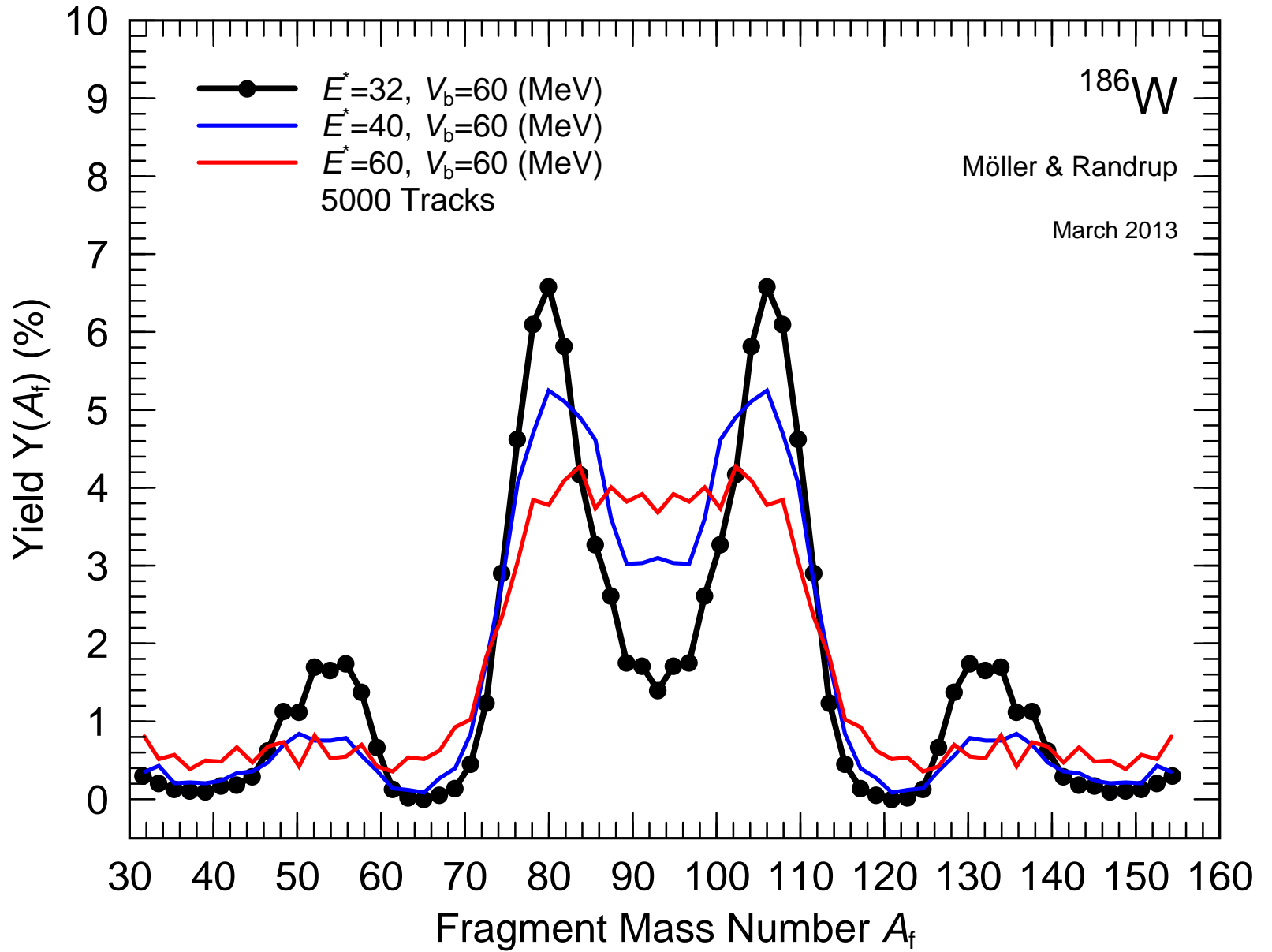
Contrasting Fission Potential-Energy Surfaces $\text{Hg} \leftrightarrow \text{U}$

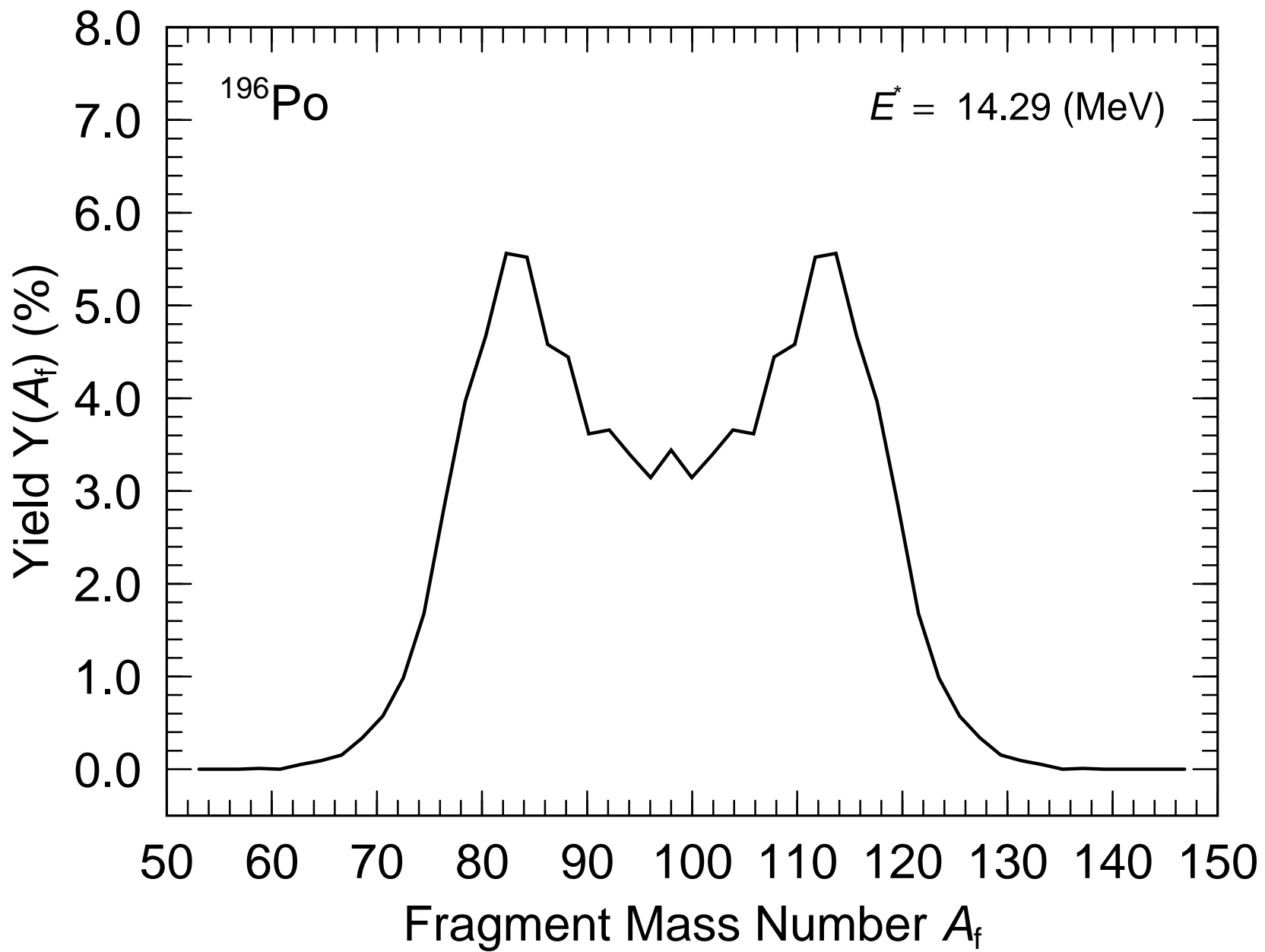


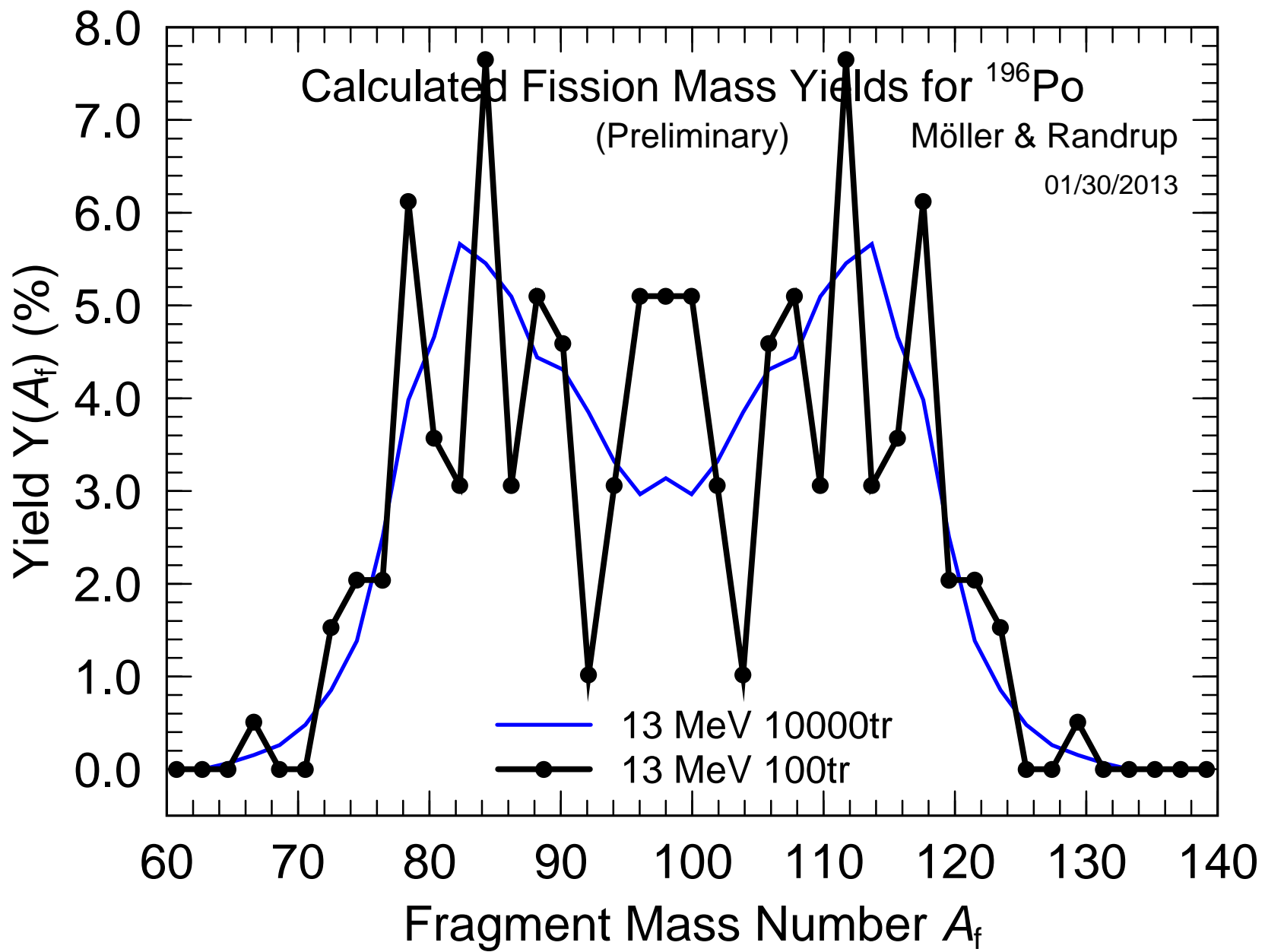












C O N C L U S I O N S

- Second-generation model describes the 70 yields observed in the GSI experiment with unexpected (to me) accuracy.
- Studies of entire isotope chains indicates transition from asymmetric below approximately $A = 200$ to symmetry for $200 < A < 226$.
- Highly variable behavior below Pb.
- Therefore experimental tests of predictions in region below Pb are **HIGHLY** desirable.
- At low energy and many events, please.
- Future theoretical enhancement: Potential-energy surfaces versus variable Z and N in nascent fragments.