Mass Evaluation -- Resolution

\[ \frac{m}{\Delta m} = 2 \times 10^6 \]
Accuracy of Schottky Mass Measurements

![Graph showing mass accuracy vs. mass number for different years: SMS 1995 and SMS 2003. The error bar is set to 30 keV for SMS 2003.]

SMS 1995

SMS 2003

σ = 30 keV

T. Radon, Yu. Litvinov
Comparison to ISOLTRAP


About 1/3 of all known masses were covered in one experiment.

Mass accuracy: $1.5 \cdot 10^{-7}$

Mass resolving power: $2 \cdot 10^6$

Results: 285 new masses

In addition more than 200 improved mass values
Predictive Power of the Finite-Range-Liquid-Drop-Model (FRLDM)

P. Möller et al. ADNDT 59 (1995)185

\[ \sigma_{\text{rms}} = 669 \text{ keV}, \sigma_{\text{rms}} = 448 \text{ keV}; N \geq 65 \]

\[ \sigma_{\text{rms}} = 696 \text{ keV} \]
Predictive Power of the Hatree-Fock-Bogoliubov Model

M. Samyn et al. NP A700 (2001) 142

$\sigma_{\text{rms}} = \sigma_{\text{rms}} = 674 \text{ keV}$

$\sigma_{\text{rms}} = 650 \text{ keV}$

Comparison of measured masses with HFB

see talk J. M. Pearson
Predictive Power of the Relativistic Mean Field Model (RMF)

G.A. Lalazissis et al. ADNDT 71 (1999) 1
even-even nuclei, NL3, $\sigma_{\text{rms}} = 2.6$ MeV

$\sigma_{\text{rms}} = 3831$ keV

Yu. Litvinov
New Isospin Dependence of Pairing

2. Pairing-Gap energy, deduced from 5-point binding difference

\[ \Delta_{n5} = \frac{1}{8} \left( m(Z,N+2) - 4(Z,N+1) + 6m(Z,N) - 4m(Z,N-1) + m(Z,N-2) \right) c^2 \]

\[ \Delta_{p5} = \frac{1}{8} \left( m(Z+2,N) - 4(Z+1,N) + 6m(Z,N) - 4m(Z-1,N) + m(Z-2,N) \right) c^2 \]