Fitting strategies

bulk observables of finite nuclei

E_b binding energies r, R radii σ surface

free χ^2-fit

$\Downarrow$

infinite matter

$a_{\mathrm{sym}}, K_\infty, m^*/m, \kappa$

nuclear matter properties (NMP)

$\Downarrow$

big extrapolation errors for NMP

(correlations between NMP)

χ^2-fit with constrained NMP

$\Downarrow$

additional observables

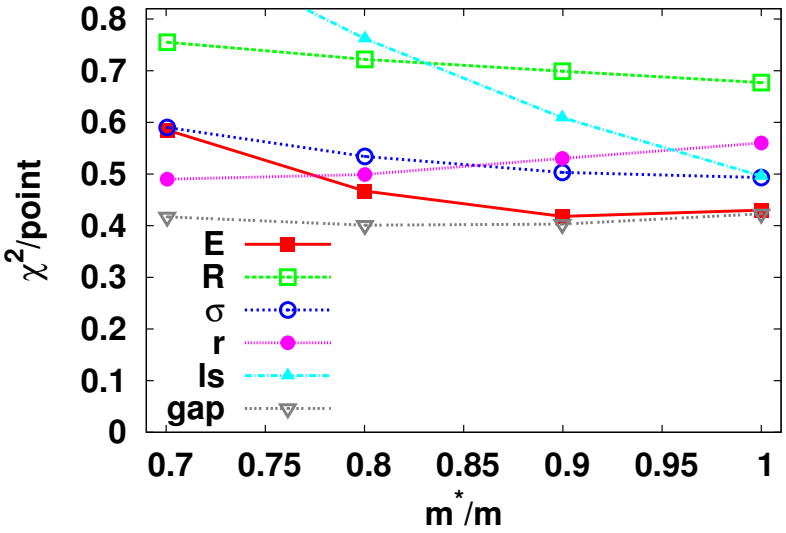
a posteriori computation of

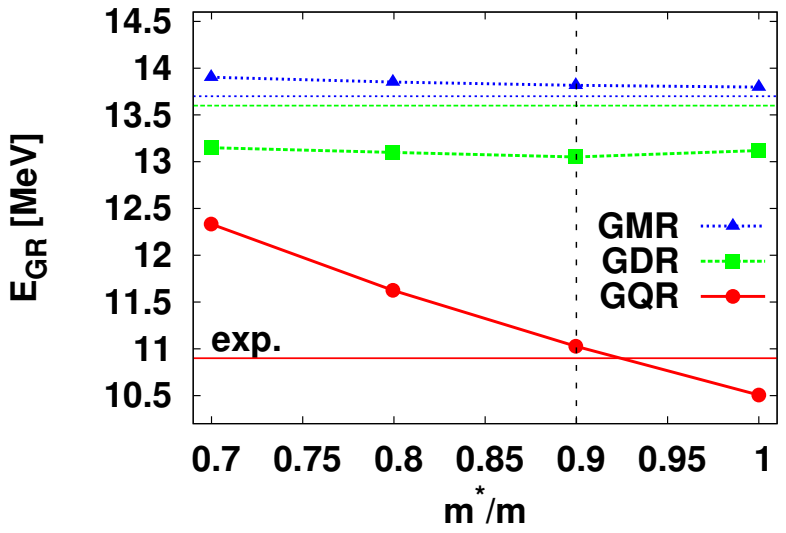
level splittings, giant resonances, SHE, ...

$\Downarrow$

optimal choice of NMP

Fitting strategies





- contributions to χ^2 from different observables have different trends with m^*/m
- similar for K_∞, $a_{\rm sym}$, κ
- optimal selection of m^*/m depends on weights (adopted errors) of the obeservables

- Giant Resonances sensitive to nuclear matter properties
  GMR $\leftrightarrow K_\infty$, GQR $\leftrightarrow m^*/m$
  GDR $\leftrightarrow (a_{\rm sym}, \kappa)$
- extrapolated errors for NMP are reduced by $\approx$ 50% if fit adjusted to Giant Resonances.