Extension of the ratio method to low energies

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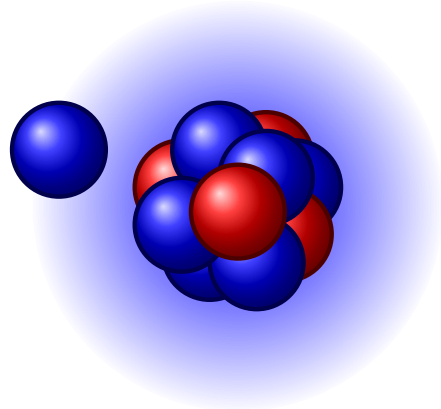
Halo Nuclei



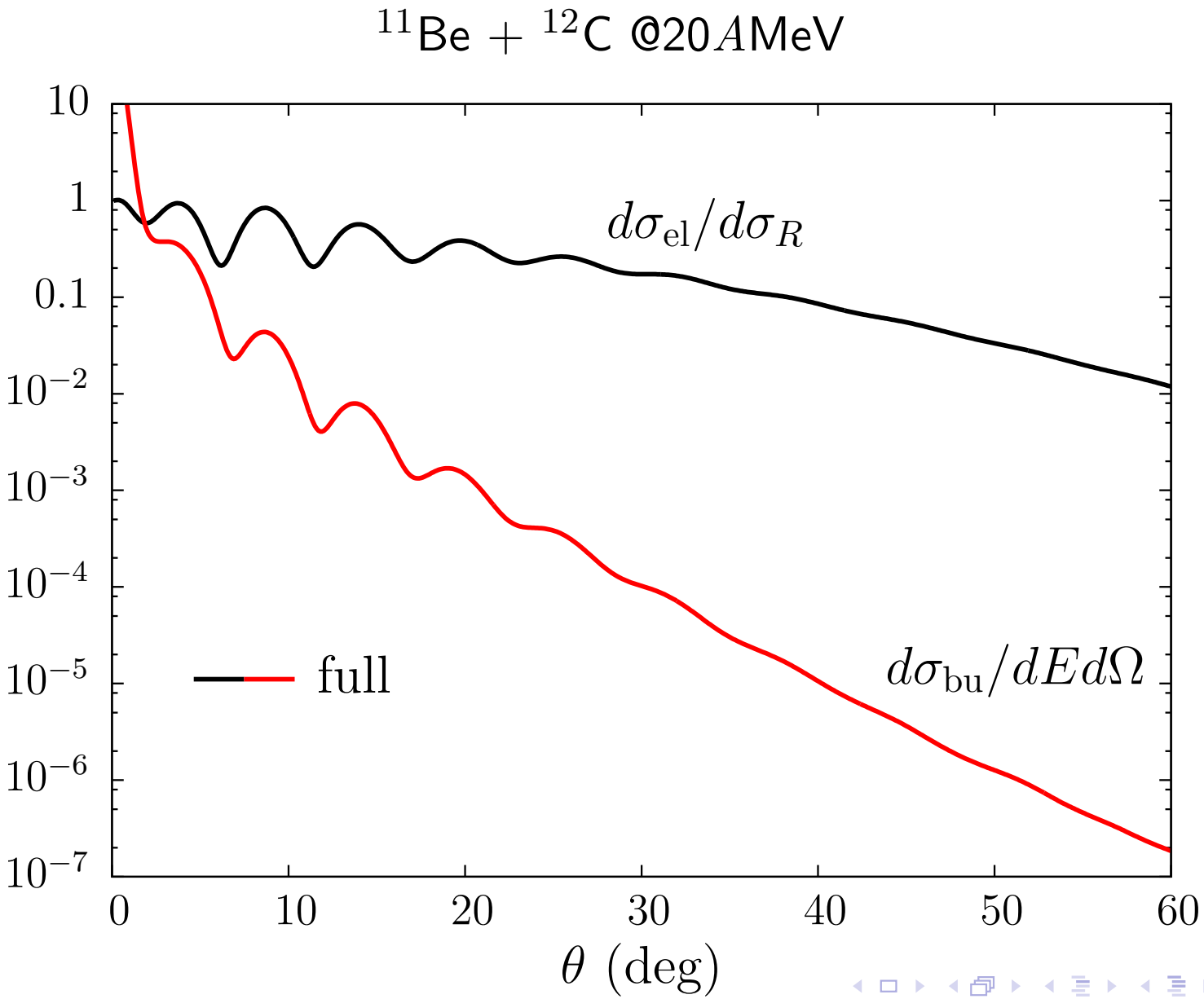
- Very **neutron-rich** nuclei
- **Large matter radius**

- **Compact core** surrounded by loosely-bound neutron(s)
  $\rightarrow$ the neutron(s) form a **halo**.

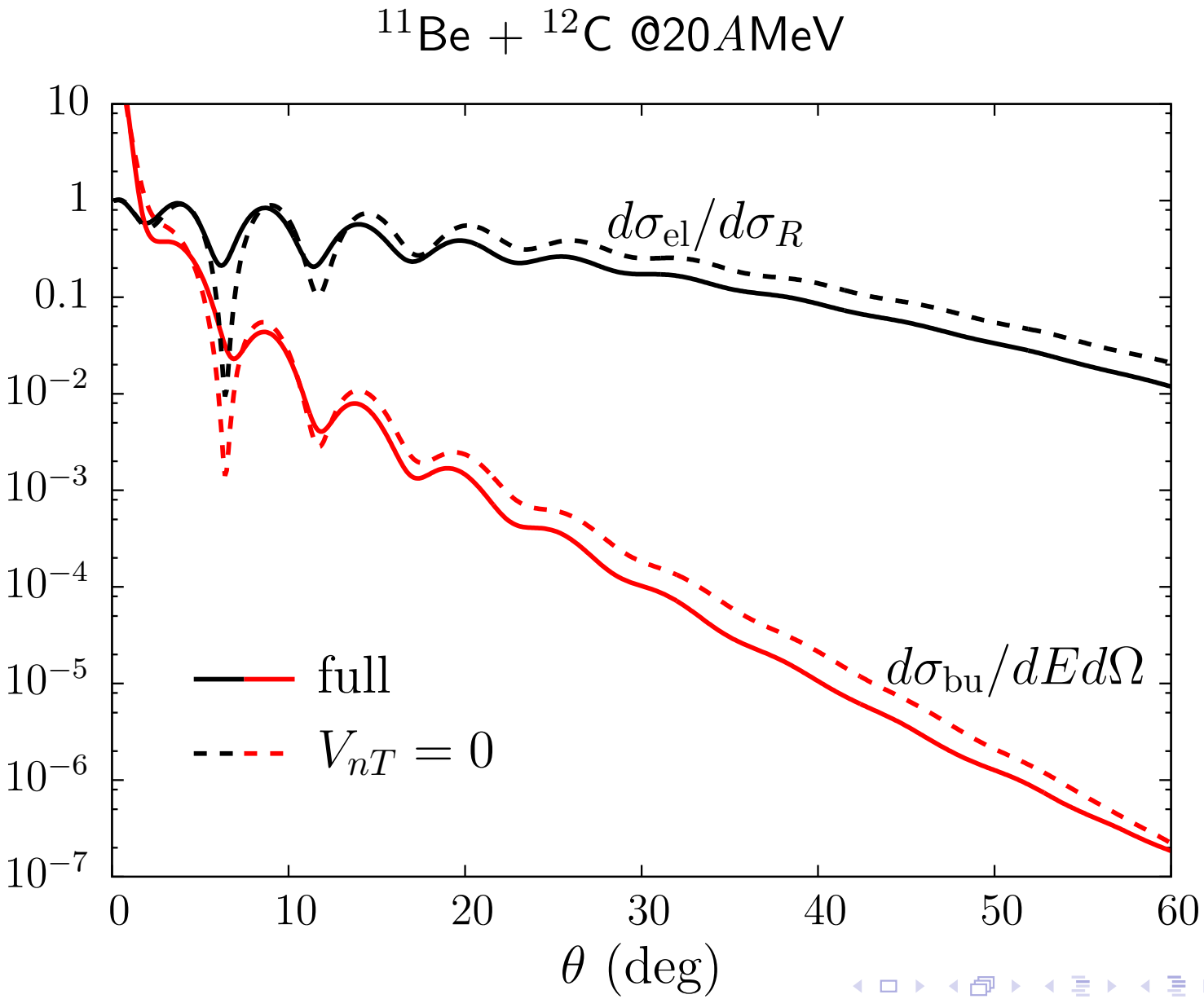
  Examples : ^{11}Be, ^{15}C (one-neutron halo),
  ^{6}He, ^{11}Li (two-neutron halo).
- **Small life times** $\rightarrow$ studied through **reactions**
  (e.g. elastic scattering, breakup, ...)

$\rightarrow$ Need **accurate theoretical description of reactions**

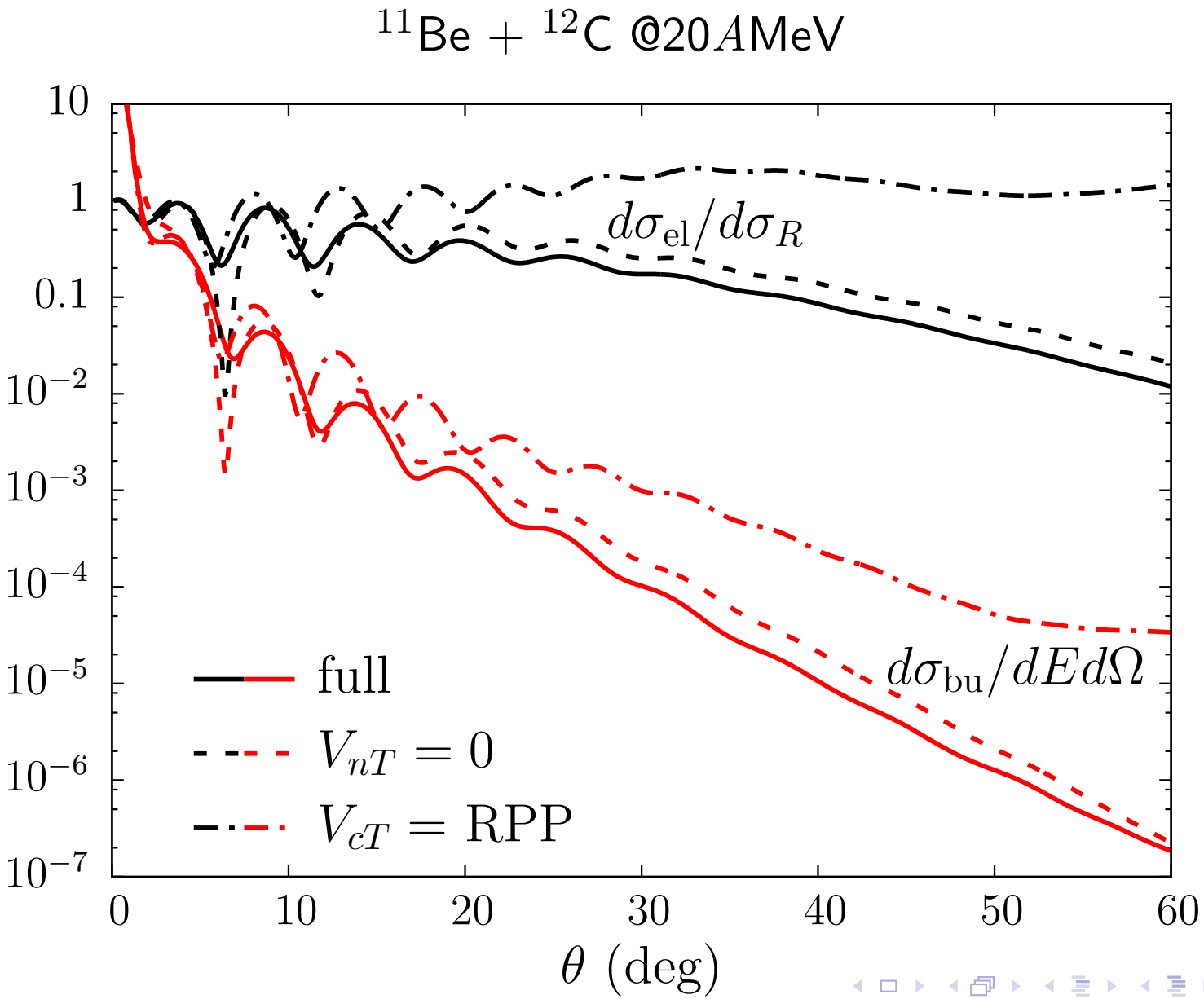
Sensitivity of observables to reaction model



Sensitivity of observables to reaction model



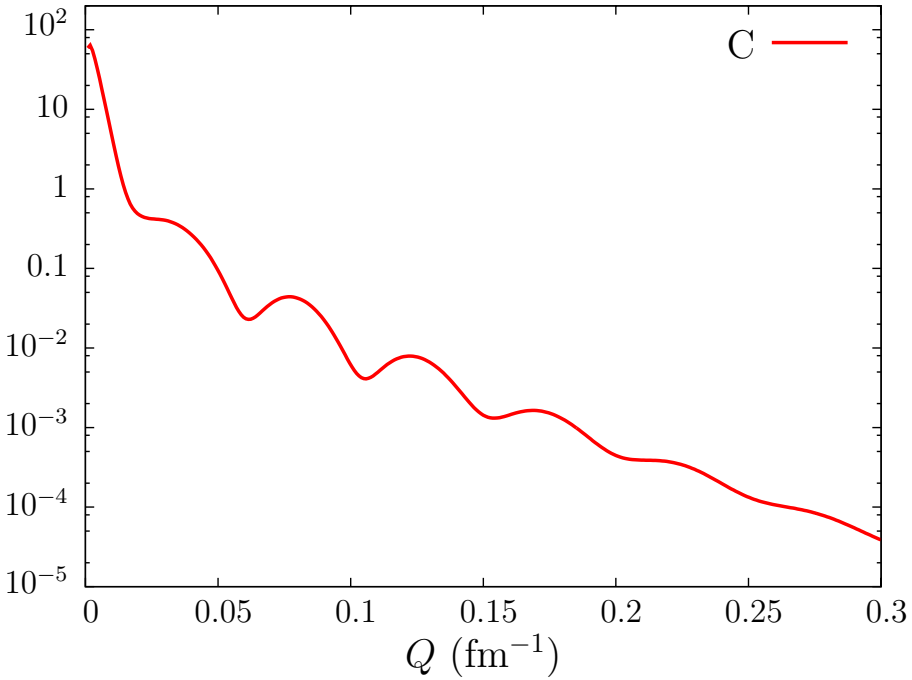
Sensitivity of observables to reaction model



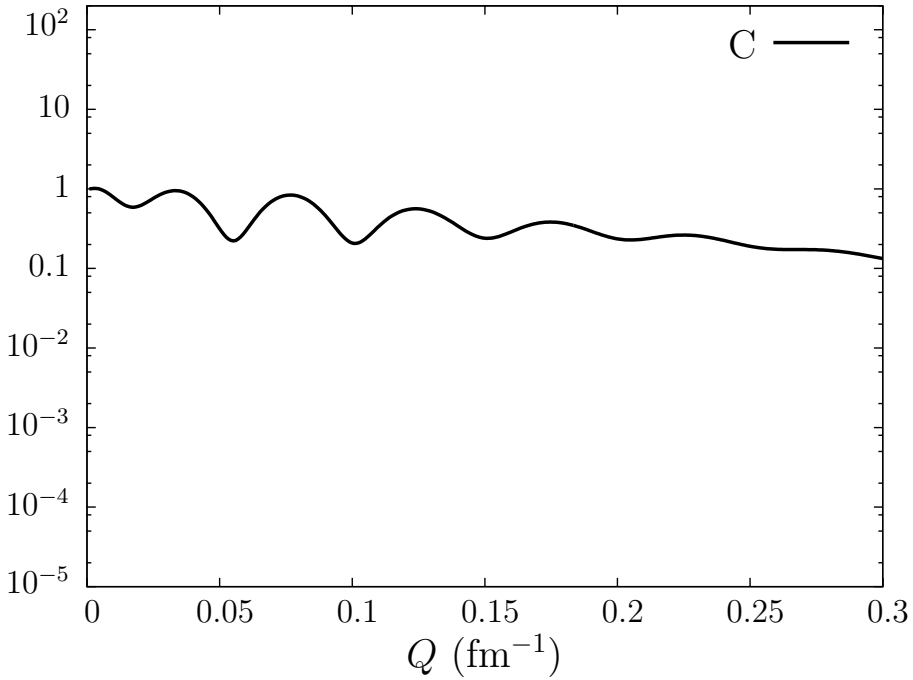
Sensitivity of observables to reaction process

$^{11}\mathrm{Be} + {}^{12}\mathrm{C}$ @20AMeV

$d\sigma_{\mathrm{bu}}/d\Omega dE$



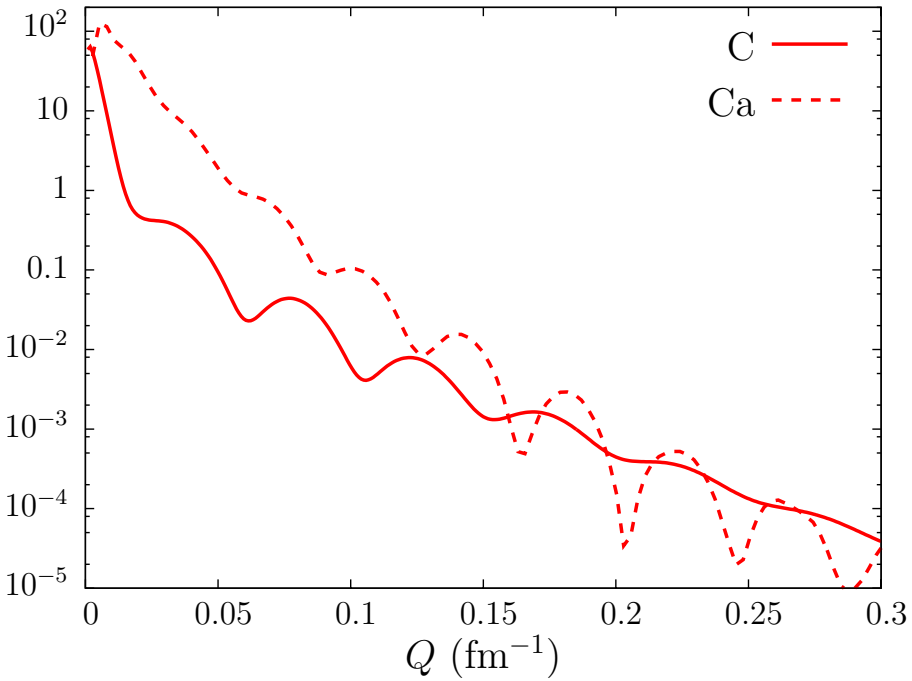
$d\sigma_{\mathrm{el}}/d\sigma_{\mathrm{R}}$



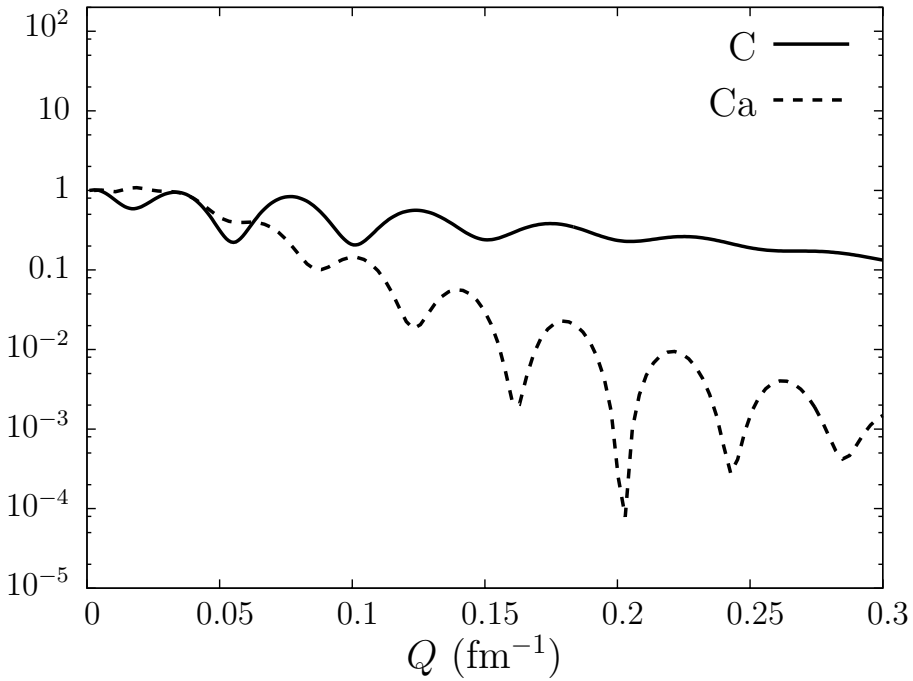
Sensitivity of observables to reaction process

^{11}Be + ^{12}C, ^{40}Ca @20AMeV

$d\sigma_{\mathrm{bu}}/d\Omega dE$



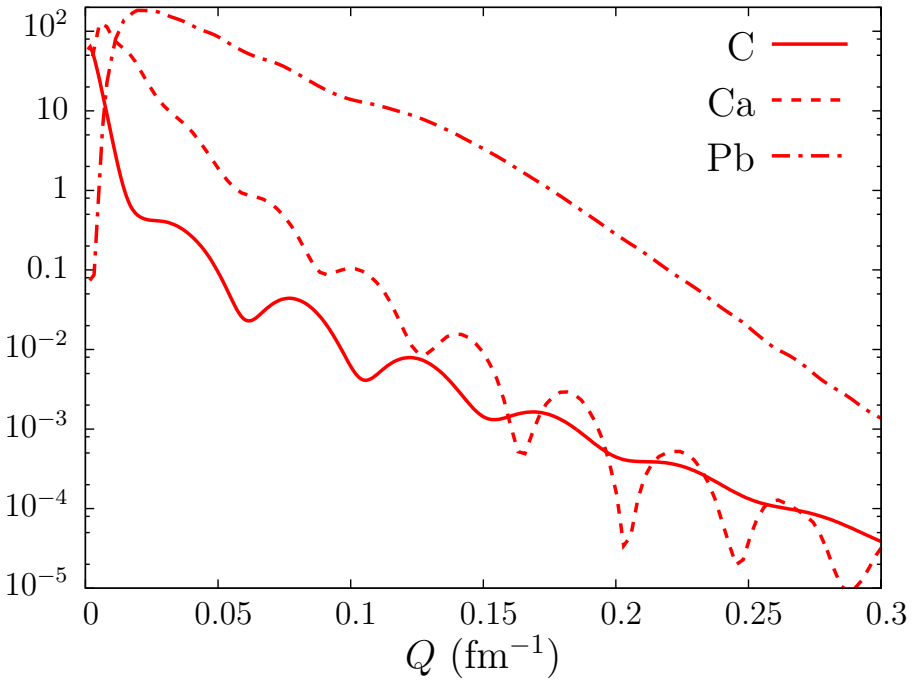
$d\sigma_{\mathrm{el}}/d\sigma_{\mathrm{R}}$



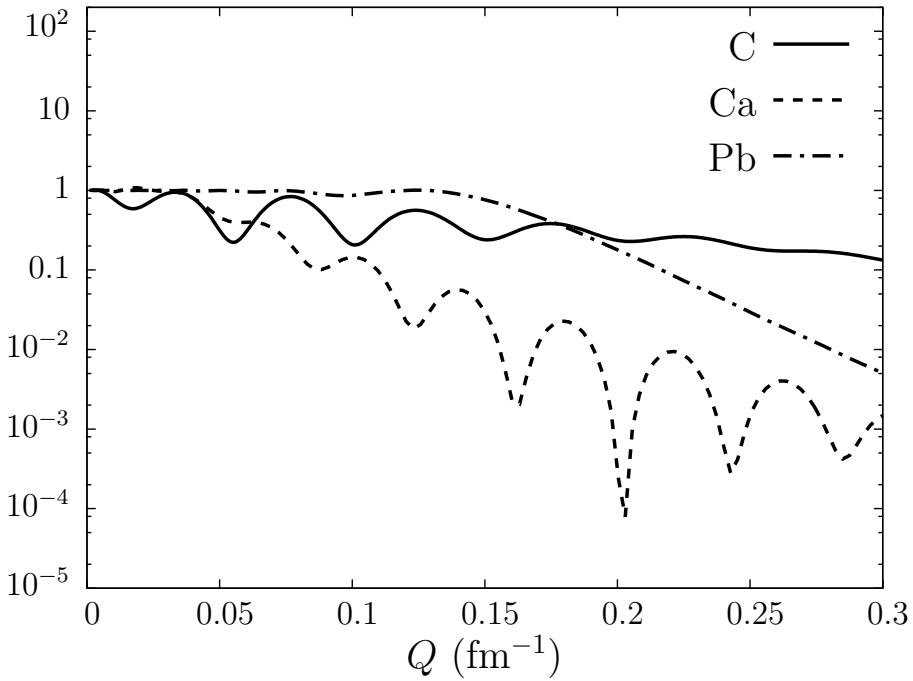
Sensitivity of observables to reaction process

^{11}Be + ^{12}C, ^{40}Ca, ^{208}Pb @20AMeV

$d\sigma_{\mathsf{bu}}/d\Omega dE$



$d\sigma_{\mathsf{el}}/d\sigma_{\mathsf{R}}$



An observable totally model-independent ?

Come and see my poster to find out !