

# Parity violation in heliumlike Europium

## Weak interaction

$$H_w = - \frac{G_F}{2\sqrt{2}} Q_w \rho_N(r) \gamma_5$$

$$Q_w = Z(1 - 4 \sin^2 \Theta_w) - N$$

$$I = \frac{5}{2}$$

Beam polarization by a polarized stripping foil.  
Hydrogenlike ions are separated.

Selective electron capture leads to heliumlike ions in the  $2^1S_0$  state.

Hyperfine mixing leads to the M1-transition:  
 $2^1S_0 \rightarrow 1^1S_0$

## Additional decay channel

$2^1S_0 - 2^3P_0$  mixing due to  $H_w$

$2^3P_0 - 2^3P_1$  mixing due to  $H_{\text{hfs}}$

Angular asymmetry of photon emission with respect to the foil polarization:  $2 \cdot 10^{-4}$