

Workshop on  
Recoil Separator for Superheavy Element Chemistry  
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## About the Design of a Gas-filled Separator

Timo Enqvist  
Pauli Heikkinen  
Heikki Kettunen  
Matti Leino  
Juha Uusitalo  
+  
JYFL RITU- $\gamma$  GROUP

Department of Physics, University of Jyväskylä,  
Finland

# RITU



# Starting Points

for the design of a new separator

① RITU works well for heavy or superheavy elements

☞ new device for  $A \sim 100 - 200$  region

☞ nearly symmetric reactions

② should be (considerably) different than RITU

③ cheap

☞ gas-filled separator

# Dispersive Element

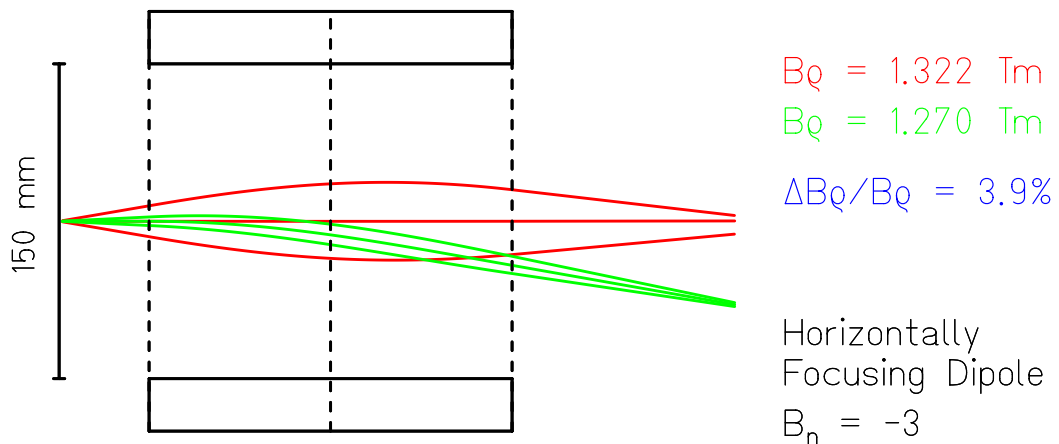
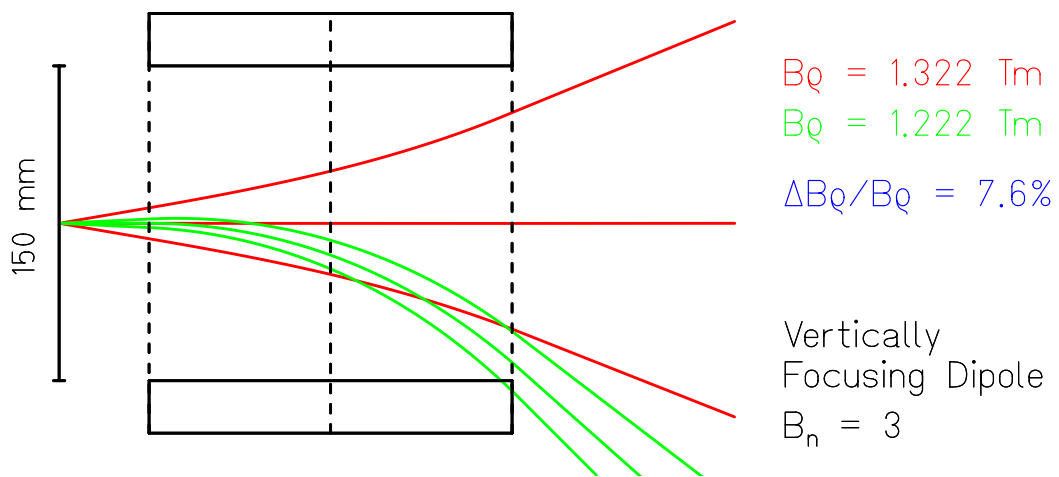
bending radius:  $\rho = 1850$  mm

bending angle:  $\phi = 50$  deg.

$^{112}\text{Sn}(^{86}\text{Kr}, 3n)^{195}\text{Rn}$ ,  $E = 365$  MeV

$a_{00} = b_{00} = 26$  mrad (recoils HWHM)

$a_{00} = b_{00} = 7$  mrad (beam HWHM)



# Estimated Properties of the new separator

	RITU	new separator
	$Q_v D Q_h Q_v$	$D_h Q_v$
hor. accep.	$\pm 30$ mrad	$\pm 90$ mrad
vert. accep.	$\pm 80$ mrad	$\pm 20$ mrad
dispersion	10 mm/% $B\rho$	28 mm/% $B\rho$
beam suppr.	$10^{-12} - 10^{-15}$	$10^{-15} -$
transfers suppr.	$10^{-3}$	$10^{-6}$ (SASSYII)

