

# Subbarrier fusion with RIBs

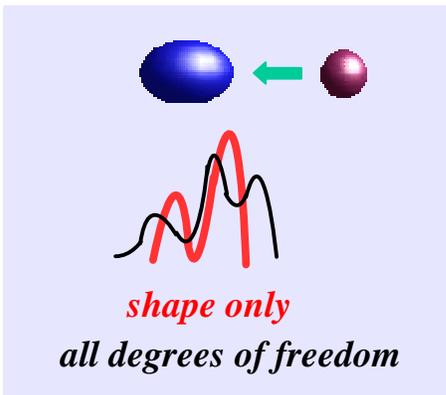
## The science

- *Tunneling is a fundamental process occurring in quantum systems. The interplay among nuclear reaction channels and nuclear structure results in a distribution of barriers for heavy ion fusion.*
- *Studies of subbarrier fusion of heavy ions provide opportunities to explore tunneling through multiple barriers.*
- *Systematic studies of fusion with neutron rich nuclei can provide important information on producing superheavy elements.*

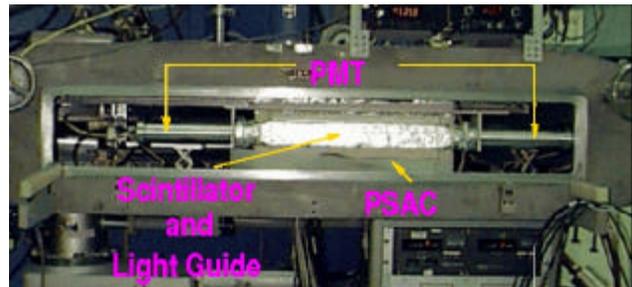
## Our Work

- *We have reconfigured the Enge split-pole spectrograph as a gas-filled separator and constructed detector systems for measuring fusion-evaporation cross sections.*
- *We have approved experiments for studying fusion induced by radioactive nuclei.*
- *We are preparing instruments for studying fusion-fission reactions induced by neutron rich radioactive beams.*

## Multiple-barrier tunneling



## Focal plane detector



## Identification of ERs

