

# LUNA & LUNA2

AIMS

STATUS = COMPLETED in 2000

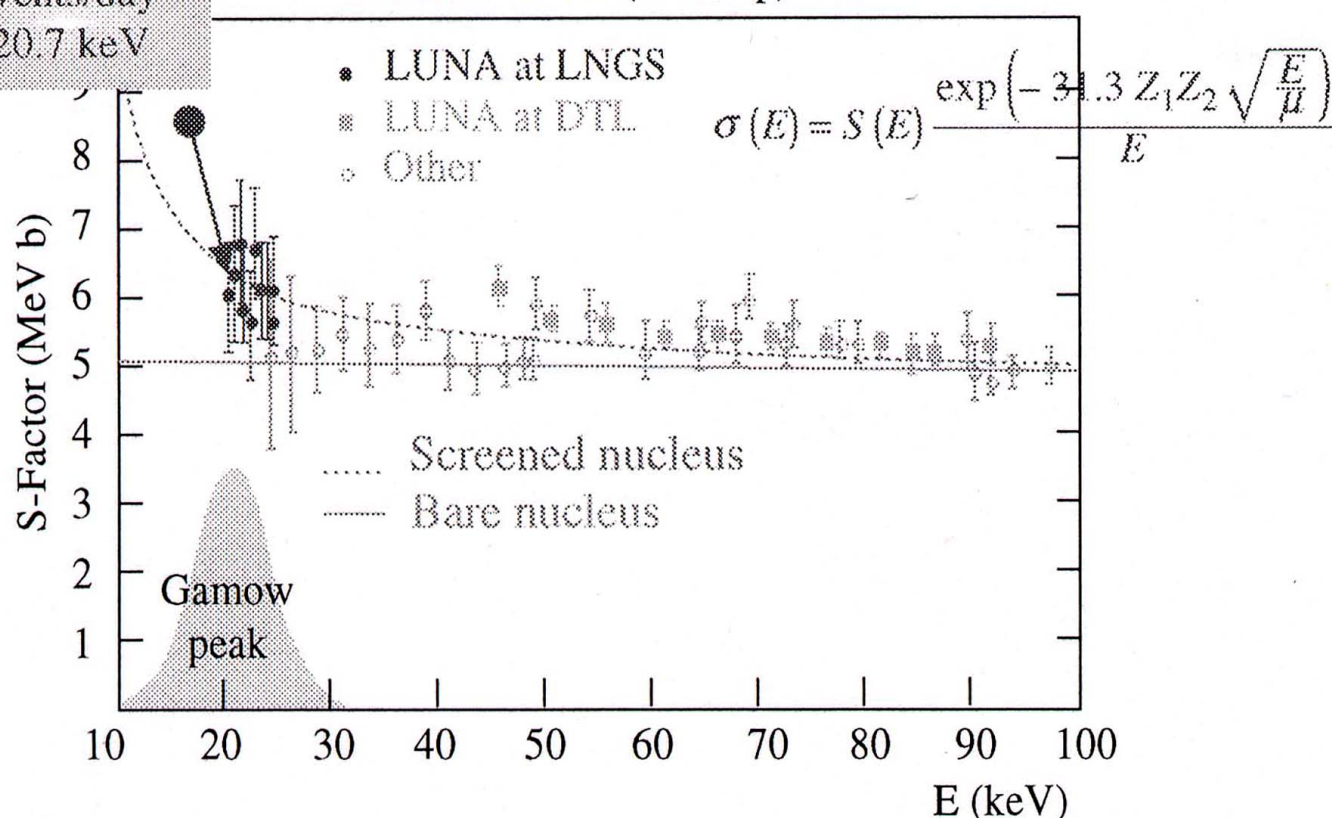
measurements of  $\sigma(E)$  of thermonuclear reactions in the energy range of astrophysical interest  
study of electron screening effects in the laboratory

## 50 kV accelerator at LNGS:

compact design; intense currents ( $^3\text{He}^+$  beam of 500 mA)  
double focusing analyzing magnet; windowless gas target  
5x5 cm<sup>2</sup> silicon detectors for  $\Delta E - E$  measurements

3 events/day  
@ 20.7 keV

S-factor of  $^3\text{He} (^3\text{He}, 2p) ^4\text{He}$



Recent measurements have reached  $E_{cm} = 17$  keV

Planned measurement to  $E_{cm} = 4$  keV of reactions  $D (^3\text{He}, p) ^4\text{He}$  and  $D (p, \gamma) ^3\text{He}$

## LUNA2

200 kV accelerator being built  $E_{cm} \sim 100$  keV

$^7\text{Be} (p, \gamma) ^8\text{B}$

$^{14}\text{N} (p, \gamma) ^{15}\text{O}$

$^3\text{He} (^4\text{He}, \gamma) ^7\text{B}$

STATUS = APPROVED

will run in 2001