

O TLINE

WHY and HOW to look for SNRs interacting with clouds ?

CRs (protons) accelerated by SNRs

Connection between Clouds and Interacting SNR

Why are interacting SNRs interesting objects?

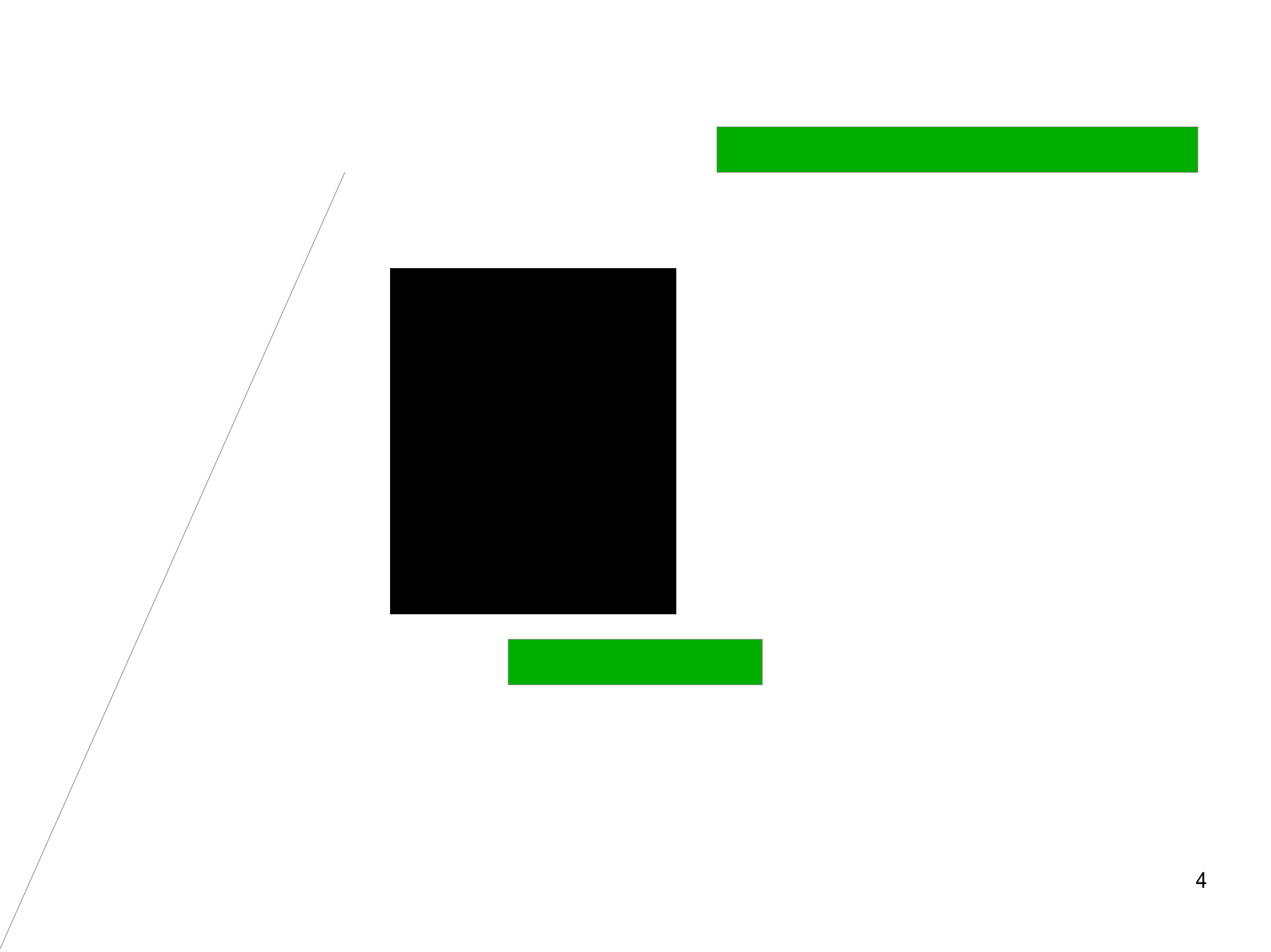
Cosmic rays (CRs): 99% protons and nuclei

Molecular clouds (MC):

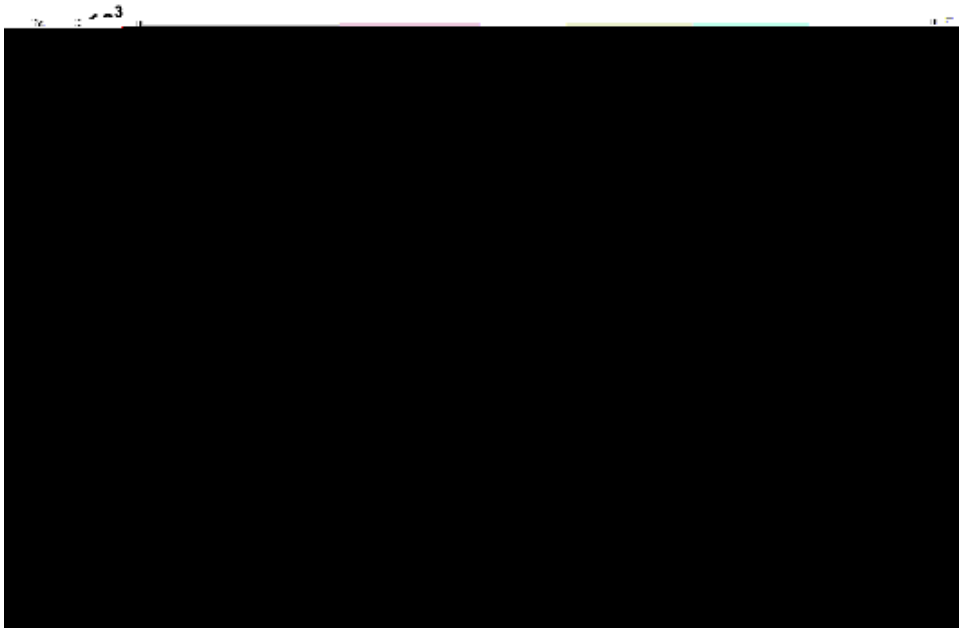
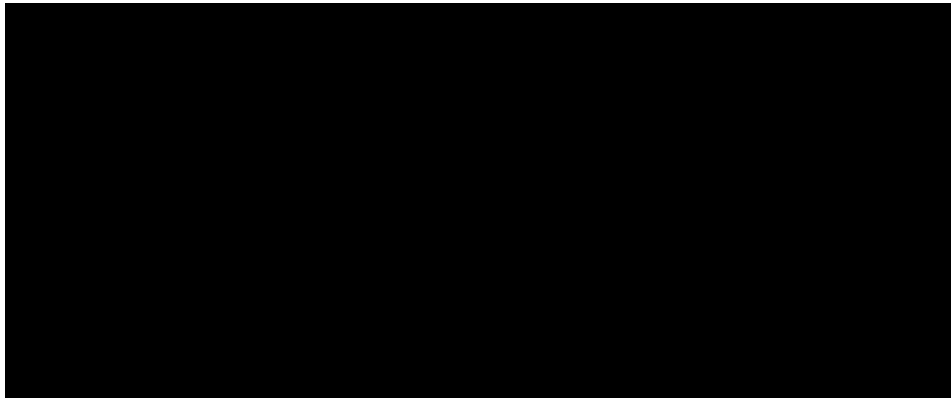
→ Mainly H_2 Protons!

→

Ambient target and shock wave
at the same place



Characteristic pion decay signature at



Gamma-ray observations of IC443

TeV (VERITAS here - cross) coincident with CO
(black)

GeV

Gamma-ray observation of W44

GeV (Fermi map) detection coincident
with **shocked H_2**

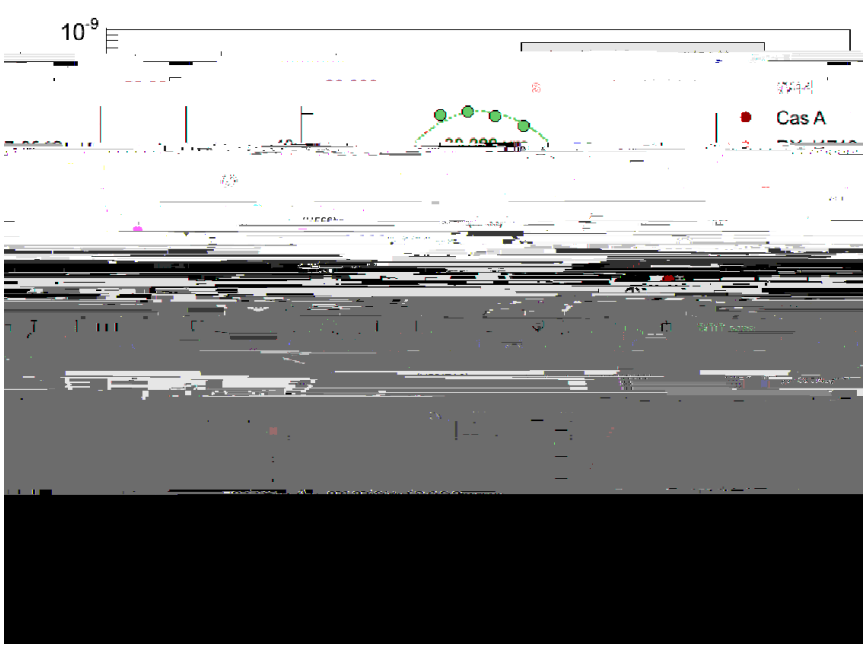
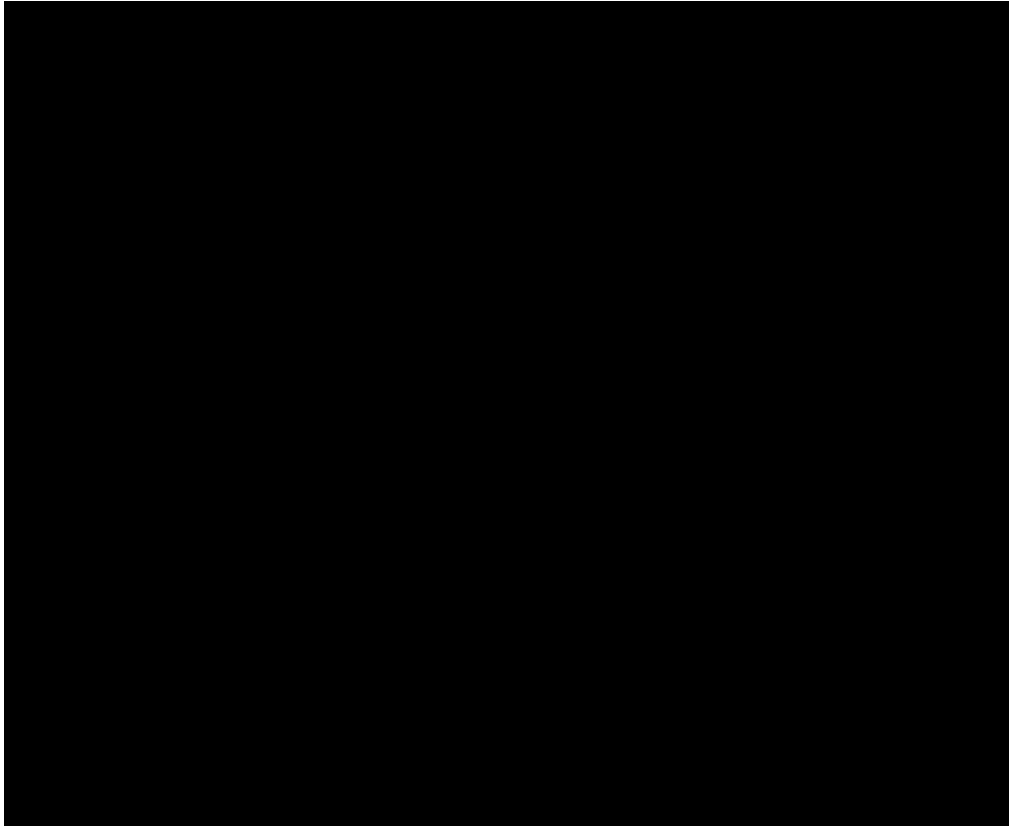
OH masers along the shell (O)

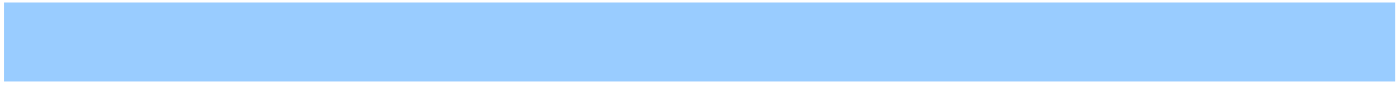
PWN (X)

TeV emission not detected



Characteristic signature
of pion decay







Interacting SNRs with H.E.S.S.

S MMAR ;

Search for **cosmic rays** (CRs) **acceleration**

CRs are mainly protons

→ **Molecular clouds** to **increase** protons **density**

→ **SNR** to **accelerate** particles

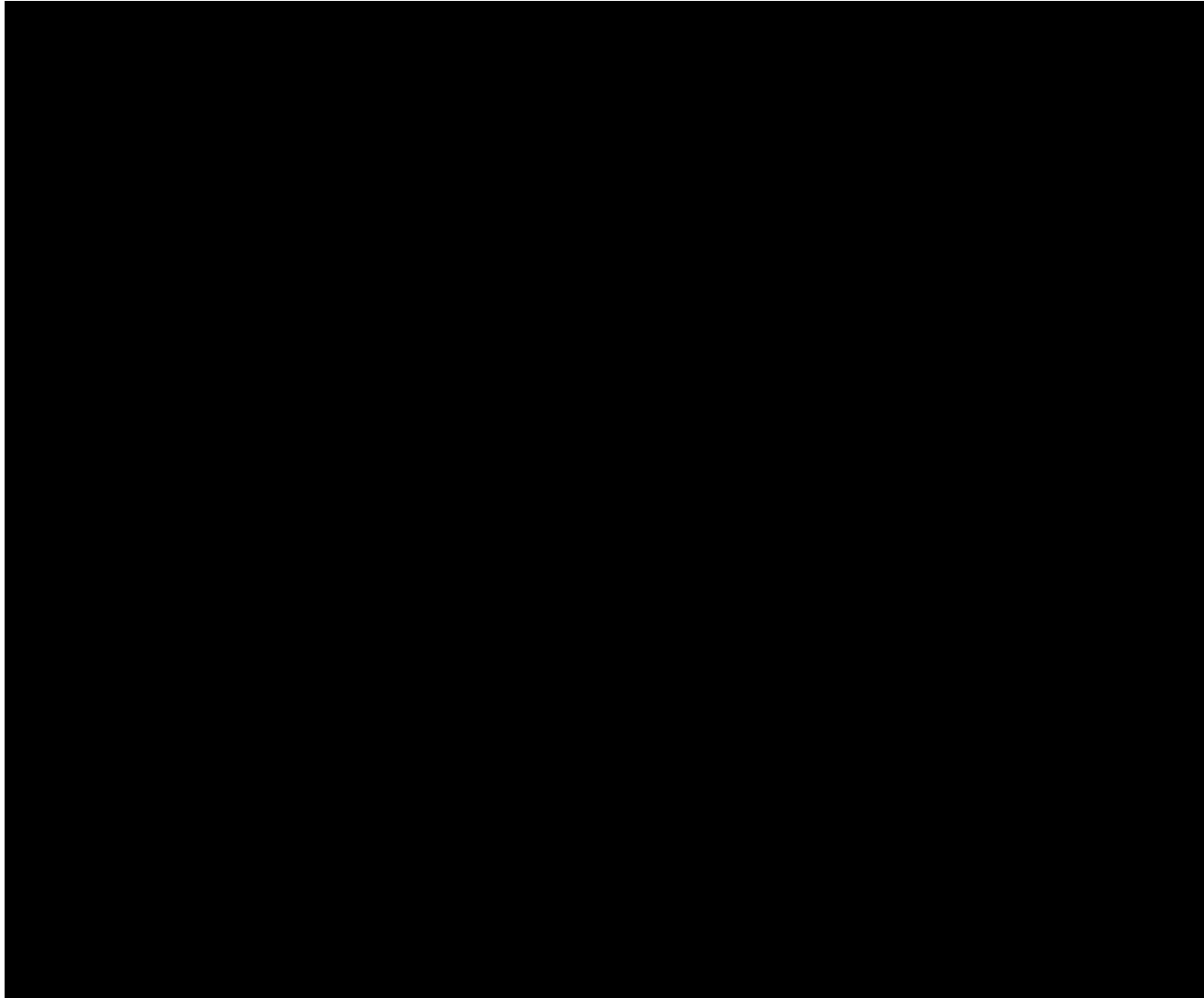
SNR/MC associations betrayed by tracers: @ "Ic&to

$$2acu * 2a$$

2r)adening (O line in <==

Narr) 0 line !c)ld gas' behing the cl)ud

2r)ad line is the /inematic effect)6 sh)c/ 0a1e



(Respect **B**c