We report the search for intermediate mass magnetic monopoles ($10^7$–$10^{13}$ GeV/c²) and nuclearites using CR39 and Makrofol Nuclear Track Detectors (NTDs) in the SLIM large area experiment, 440 m² exposed at the high altitude laboratory of Chacaltaya (Bolivia) and about 100 m² at Koksil, Himalaya (Pakistan). We discuss the new chemical etching and improved analysis of the CR39 sheets. Preliminary limits are based on 310 m² of CR39 NTDs exposed for 3.9 y.

Analysis of 310 m² of SLIM NTDs exposed for 3.9 y: no candidate was found → 90% CL Upper flux limit for down going intermediate mass magnetic monopole with $g = g_D, 2g_D, 3g_D$ and $M+p$. 

Improved Etching Conditions for the SLIM experiment

- **6N NaOH + 1% alcohol, 70 °C**
  - $Z/\beta$ (min.) ~ 7 (at present)

- **8N KOH + 1.5% alcohol, 75 °C (24 + 14) hr**
  - $Z/\beta$ (min.) ~ 17 (at present)

**SOFT ETCHING**

- **6N KOH + 3% alcohol, 60 °C**
  - $Z/\beta$ (min.) ~ 21

- **7N KOH + 1.25% alcohol, 77 °C**
  - $Z/\beta$ (min.) ~ 14

**STRONG ETCHING**

- **8N KOH + 1.5% alcohol, 75 °C**
  - $Z/\beta$ (min.) ~ 17 (at present)

Calibrations of NTDs

**DETECTORS**

**TARGET**

**DETECTORS**

**FRAGMENTS**

- In $^40$:
  - Average Area (pixel²)
  - $Z/\beta = 10$
  - $Z/\beta = 49$

Etching and Analysis Procedure

- **Strong etching** (large tracks, easy to detect)
  - General scan of the surface
  - If a signal is found in the first sheet...
  - Soft etching
  - Scan in the predicted position measurement of REL and direction of incident particle.