SuperTIGER Catching heavy cosmic rays

H

Electrons 1 percent

> Hydrogen nuclei (protons) 90 percent

> > Helium nuclei 8 percent

> > > Heavier nuclei percent

Cosmic rays are particles from far outside the solar system traveling at up to nearly the speed of light. SuperTIGER seeks heavy atomic nuclei ranging from neon to barium.

	Be												Carton	N	Ö Girygen	F	Ne
	Mg												14 Si steen	15 P storptorus	16 S safar	CI CI chore	18 Ar angers
1	Ca catolom	21 Sc scarcham	22 Ti sunun	23 V verseitum	Cr ctromburn	25 Mn margarese	20 Fe	27 Co	28 Ni richal	Ču com	30 Zn 20	Ga gatium	32 Ge permensum	Ås.	Se	Br	30 Kr urypten
	34 Sr strontum	39 Y ymrun	Zr zeroniam	A1 Nb sizeian	42 Mo	43 TC technolium	Ru	Rh	40 Pd patietum	Åg	Cd codmium	49 In Indian	Sn Sn	Sb antimory	52 Te Induntam	53 kosina	Xe
	Ba	57–71 Iorthonoidh	72 Hff helnium	73 Ta tentelum	74 W bingsten	75 Re rteenkum	76 OS cernium	77 Ir Holum	78 Pt pistinum	79 Au 994	Hg	81 TI Pailum	82 Pb ked	83 Bi bernufn	84 Po polonium	At astatine	86 Rn motor
	Ra	89–103 actinoids	104 Rf networksedium	105 Db dubnum	106 Sg	107 Bh bolivium	108 Hs heese turn	109 Mt meiterium	110 DS damatedium	111 Rg rownsperiaum	copernicium	113 Nh nhonium	FI Besovium	115 Mc moscowium	116 LV Newmorlum	117 TS terroetsine	118 Og coperation



Cosmic ray particles

SuperTIGER is a souped-up version of the Trans-Iron Galactic Element Recorder (TIGER) detector that flew in 1998, 2001 and 2003.

Balloon at launch 856 feet (261 meters) tall



SuperTIGER and its supporting hardware weighs 6,000 pounds (2,700 kilograms), comparable to a full-size van.

SuperTIGER launches from McMurdo Station, Antarctica, and can float for weeks. Circular winds aloft confine it to the continent.

McMurdo Station

After its previous flight ended in 2013, SuperTIGER spent 2 years on the Antarctic ice. It was recovered in 2015 and prepped for more scientific adventures.

Balloon at altitude 460 feet (140 meters) across

CHALL.

Recovery parachute

SuperTIGER

SuperTIGER reaches a maximum height of about 127,000 feet (39,000 meters).

Washington Monument 555 feet (169 meters)

That's nearly four times the typical cruising altitude of commercial airliners...

...and above 99.5 percent of the atmosphere.



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