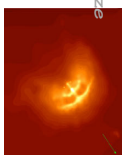


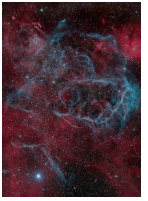
Inkalanakala nesivakashi
 Ngerninyaka yama-1920's, oGqayinyanga baqapha ukuthi uma lwomqongo inkalanakala lwaluqondene ngqo nalolo wenkanyenzi eyayisivakashi eyayibonwa oGqayinyanga bamaShayina ngo-1954. Baphinde baqapha ukuthi ubukhulungoni bayo babuqhubeka nokukhula ekuthambeni kwesikhathi, kutshi imvange yamaLangabi yona yayikhombha ukuthi yayihamba ngesivini esiliganiseliwe ku-
 *Lokhu kwahlola ekutheni bathi umqongo lo wadalaka waphinde waqala ukulwiza eminyakeni eyi-1000 eyedlule. Ngo-1928, u-Edwin Hubble waphakamisa ukuthi umqongo inkalanakala wawuyizinsalela zenkanyenzi eyabonakala iqhuma ngo-1954. Aasamukelwanga lesi isiphakamisio ngoba ngeleso isikhathi, ezomali zokugqumama kwenzinkanyenzi zazingakagqondiswa kahle hie.

5

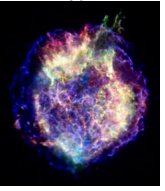
12



Inxamanga yomqongo ombhoze unyazima ivela, izinkumbhala zakhiwa izihlayivana ezimpekumpeku ezikhazizwa inkanyenzi engtunge.



Izithombhe sezinsalele zesidanguzela IVela uGqayinyanga owaywuzizimelimbhe uMarco Lorenzi



Inxamanga ka-Cas A, kukhanya okwathatwa ukugqumama kwenkanyenzi kwafinyelela emhlabeni eminyakeni engama-300 eyedlule, kodwa abukho ubufakazi obuqapshive ngelesi lehlakalo.

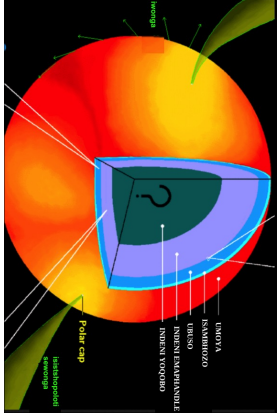
Umqongo isiginci ekukhanyeni okubonwa yiso, Wakhiwe inkanyenzi entunge ehambha ngeesivini esiphezulu.

9

Izinkanyenzi ezintunge
 Lapho indeni inkanyenzi isiphendulwe insimbhi, uhlanganisotho alube luseqhubeka nokuyilapho kulandela khona ukunyortsa komnyondo esikhathini esiyimizuzwana. Ukudona komnyondo kumamandla ngalendlela yokuthi amachwe apitshizeka ndawonye. Izinxeleli zihlangana nezinelesi okuholela ekudalekeni kwemhlabunga eyakhwe ngezintunge futshi emesiniyo eshamanala. Inkanyenzi entunge kumqongo inkalanakala inkulu kunelanga kodwa ububanzi bayo kungamakhilomitha angama-20 nje kuphela, utho olulingana neqela likaShukela Lungasinda ukulingana nesizindiso sabo bonke abantu behlangene emhlabeni. Kwiziminyo zezinkanyenzi zentunge, izinto zenzeka ngendlela ehluke kakhulu kunamona ikuphi kumkhathilibe. Ngokwezomchazadlalo, siyakwazi ukugqqa ngenqaphakathi lenkanyenzi entunge.

8

Uma ungena ngaphakathi sibhola 'umoya' oshisayo onamazanga okushisa afinyelela kwizigebese kuba isambizo esithe ukuphola; kuba ubuso bemisibhi obumncwabezi kulandele indeni emaphandle eyakhwe ngezintunge, izintlelesi kanye nezinxeleli ezinkhunananga; ebese kuba indeni yooqobo eyakhwe uhoyana okufanayo kodwa lona olulukebhezi, mhlamthe kanye nezinkente okuyizihlayivana eziyisisekelo ezihlangana ukwakha izinelesi kanye nezintunge.



Unkayo wankanyenzi entunge ngokuka Dany Page (Univ. of Mexico)

2

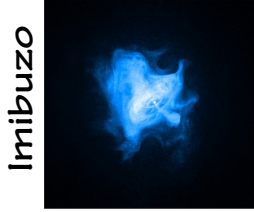
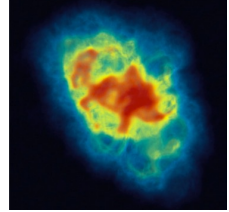
3

Ezinye 'izinkalankala' kmkhathilibe

Ngenxa yenani lezinkan yezi eezifile kumzilafasimbhe, kumele kube khona izigidigidi zezinkanyenzi ezintunge. Kodwa-ke, iningi lazo seliguqile okusho ukuthi amazinga azo okushisa asethambheme ngalendlela yokuthi azisahlonzeki. Ngisho nalezo ezishisayo zihlonzeka kuphela uma izitshopoloto zazo zamayonzi zibheke emhlabeni noma zikuhlelo lwamabhangqelo. Kulokhu kokugcina, amayonzi ashamagu avame ukukhazulwa uthuli olushisayo olusuke luwela ebusweni benkanyenzi entunge.

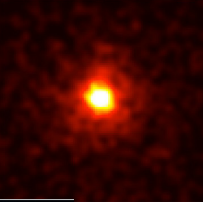
Okwamanje ziyizi-3000 izinkanyenzi ezintunge ezaziwayo kumzilafasimbhe, iningi lazo eihlonzwe okwezinyazima. Ikhasi elimalungana naleli likhombhisa izithombhe zezinye zazo.

13



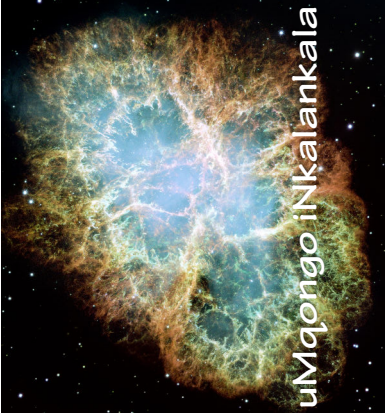
Imibuzo

Ngabe zonke lezi izithombhe zikhombhisa umqongo inkalanakala na?



Izimpindulo zingemuva

Umkhathilibe Ephaketheni Lami



3

3

4

13

1

Lesi isigameko sisibophelele kwiziganekwane ezindala zaseShayina ezifana nalena ebizwa ngelidai mingchen zouyi (leixi). Isigaphu esixikiwe sikhuluma ngayo inkanyenzile.

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Lesi isiwawa sabonwa nabase-Japani, eYurophu kanye nase-Alabhiya. ezazi: indlela imvange ekhombhisa ukudikiza kwezinto emkhathini. Ukubhuda kwemigqa yemvange kuhambisana ngqo nesivini sento ngokombuki.

4

Ngo-1954, uGqayinyanga waseShayina, uYang Weide wabona inkanyenzi entsha eha emkhathini. Lemkanyenzi 'eyisivakashi' nokuyigama ayiqamba lona, yayibonakala ngisho naseemini clehe izinsuku ezilw-23, yayiqhubeka yabonakala ebusukuku linyaka emibili.

13

1

