UMkhathilibe Ephaketheni Lami

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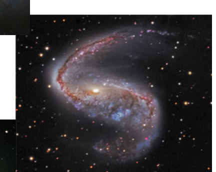
TUIMP No. 3 THE UNIVERSE IN MY POCKET

Imibuzo

Ikuphi okungasiwona umThalakazi la?



Izimpendulo zikwi-overleaf

Imidonsiswano YemiThalakazi

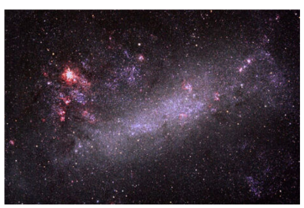
ImThalakazi ayihlali yodwa. Yize imThalakazi eyingoqela ijwayele ukutholakala ezindaweni eziqhingekile kumKhathilibe, imiThalakazi elepesi ijwayele ukuba ishimanqa.

imiThalakazi eyishimanqa ingadonsisana ngezindlela ezahlukene: imiThalakazi eyingoqela eshayisanayo ingahlangana ikhiqize umthalakazi olepesi. UmThalakazi odlula maduze nomunye ungadala umsila ngokudonsa iziNkanyezi zomuny'umThalakazi.

Iemidonsiswano ishintsha ngaphezulu-nje kwesimo semThalakazi:

Kungavuselela ukudaleka kwezinkanyezi ezintsha.

Mhlawumbe imiThalakazi eminingi iseke yaba kulomdonsiswano kudala.



Amafu amakhulu iMejalani, awumThalakazi osendelene nomZilafasimbe.

I-M31, umThalakazi i-Andromida, okuwumThalakazi oyingoqela osondelene nomZilafasimbe. LesisiThombe sathathwa u-Lorenzo Comolli ngezipopolo ezincane

ImiThalakazi Elepesi

ImiThalakazi elepesi ingaba indilinga noma yanuleke. Yehluke nengoqela ngokuthi yona ingabaqwatha iphinde ibebuhalazi. Yakhiwe iziNkanyezi ezindala, okuyinikeza umbala obomvu. Inamafu kanye nothuli oluncane.

ImThalakazi elepesi emincane ibizwa 'ngembashelan'epelesi' kanti zinobubanzi obuyizinkulungwane eziyishumi kwikhanyabanga (Zincane ngokwe-10 maziqhathaniswa nomZilafasimbe) kanti ziqukethe izigid'eziyishumi leziNkanyezi.

UmThalakazi olepesi omkhulukazi unobubanzi obuyisigidi kwikhanyabanga, kanti uqukethe izizinkanyezi eziyi-10^{13}.

KwimThalakazi elepesi iziNkanyezi zinyakaza ngendlela esaguqu, okuphambana naleyo engoqela.

*10000000000000

ImiThalakazi emibili elepesi: i-NGC 3311 kanye neNGC 3309. Lesi isiThombe sathwetshulwa u-Elizabeth Wehner kanye noWilliam Harris ngeziPopolo i-Gemini-south.

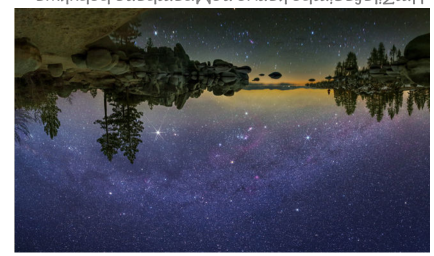
ESO 593-8: Ibhangqa lemThalakazi edonsanayo. Lamaqayinga womabili azohlangana kukhiqizeke umThalakazi owodwa kwisiyakade.

I-NGC 6621 kanye neNGC 6622, ibhanqa lemiThalakazi edonsanayo. Ukusondelana sekudale umusila omude osuka kuNGC 6621.

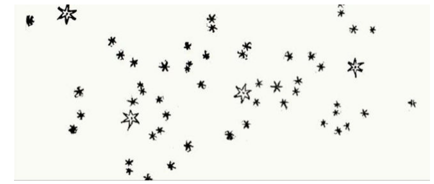
Izingambuza zeziNkanyezi ezibuhalazi eziyingeleza kwingenqe yomThalakazi oyingoqela i-NGC 5907.

Kusukela kwimQongo kuya kwimThalakazi

Okunye okusamaFu kuyabonakala emkhathini. Ngowe-1781, uCharles Messier wabhala uhlu olaluqukethe ezi-104 kuqukethomagama lakhe. Inhlolokukhanya (eyaqhamuka noHuggins ngowe-1863) yakhombisa ukuthi kunezinhlobo ezimbili zokusaMafana: AmaFu aluthuli kanye nemQongo. Kwakunokuphikisana ukuthi ngabe leziziShimanga zitholakala ngaphakathi noma ngaphandle komZilafasimbe, kwaze kwaba u-Edwin Hubble ukala ibanga eliya kowodwa ngowe-1924. Kwasekukhonjiswa ukuthi iningi la lamaFana 'kwakuyiziqhingi zemiKhathilibe' efanayo nowethu, umZilafasimbe. LamaFana asebizwa ngemiThalakazi.



UmZilafasimbe kanye neMpambano bebukwa ngasechibini i-Tahoe eNevada (Melikha).



UmDwebo kaGalileo womZilafasimbe eduze kweMpambano: amasterikhi amancane amele iziNkanyezi ezibuhalazi.

UmKhathilibe Ephaketheni Lami No. 3

LeNcwajana yabhalwa uGrażyna Stasińska wase Paris Observatory (eFrance) ngo-2015 kanti iningiliziwe uStan Kurtz wase-UNAM Radio Astronomy Institute eMorelia (eMexico).

IziThombe eziningi zithathwe ngeziPopolo ezinkulu ze-ESO kanye neziPopolo ezisemkhathini i-Hubble. Zinikezelwe i-NASA, i-STSCI, kanye ne-ESA.
IsiThombe somZilafasimbe kanye neMpambano sithathwe uWally Pacholka (TWAN).
IsiThombe sekhava sikhombisa imThalakazi edonsisanayo i-Arp 22; vakashela u-www.annesastronomynews.com/photo-gallery-ii/galaxies-clusters/arp-227/

Uma ufisa ukufunda kabanzi ngalolungechunge kanye nezinloko ezethulwe kuleNcwajana, sicela uvakashela u- http://www.tuimp.org

Ukuhumusha:Nhlanhla Mbambo
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Sonke sesike sakubona ukukhanya obuhalazi obunqamula umkhathi ebusuku. AmaGrikhi akubiza ngeNdlel'entusi. AbaseGhibhithe kanye namaShayina, kwakuwuMfula wasemazulwini, kanti amaSayibheriya kwaku umthungo osemKhathi.
Kusukela emandulo, oSosayensi kade babezama ukuqonda imvelo yakho. Abaningi abafana no-Anaxagoras endulo yaseGrisi noma u-Al Biruni wasePheshiya, babekholelwa ukuthi kwakhiwe iziNkanyezi eziningi ezisondelene ndawonye.
Lombono waqiniswa ngenkathi uGalileo Galilei ebuka umZilafasimbe ngeziPopolo zakhe ngowe-1610 nokuyilapho akhombisa khona ukuthi nangempela wawakhiwe iziNkanyezi eziningi ezibuhalazi.

UmThalakazi oyingoqela i-NGC 1232 kanye nesithandani sawo esincane i-NGC 1232A. IsiThombe sathathwa ngeziPopolo i-VLA ye-ESO eChile.

I-NGC 4565: umThalakazi oyingoqela ubonakala unqanqama. LesisiThombe sathwetshulwa uKeith Quattrocchi ngeziPopolo ezingu-40 cm ububanzi.

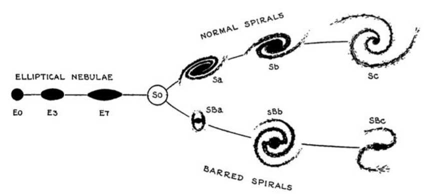
Imfoloko Yokuvuma kaHubble

Emva kokuqaqulula izithombe zemiThalakazi eyama-400, u-Edwin Hubble wangcikisha indlela yokuhlukanisa imiThalakazi ngezimo zayo.

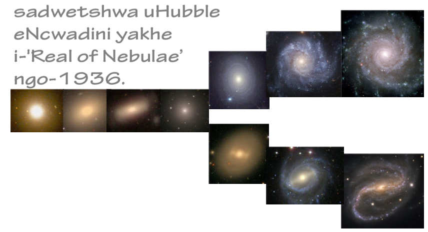
Nangemuva koshintsho, ukuze kufakwe imiThalakazi emdibi, umngcikisho kaHubble usadume kakhulu.

Manje oSosayensi sebekwazi nokukala izisindo zemiThalakazi, kanti sekuvele ukuthi isifanelo sikaHubble- kusukela kwimThalakazi elepesi kuya kwengoqela-siwukuhluzeka kwemThalakazi.

Akukakaziwa kahle ukuthi isikokela esiphakathi nezimo zemThalakazi kanye neisindo kubangelwa yini.



Isifaniso semfoloko yokuvuma sadwetshwa uHubble eNcwadini yakhe i-'Real of Nebulae' ngo-1936.



Imfoloko seyakhiwe ngezithombe zesimanje:
NGC 1407 (E0), NGC 1052 (E3), NGC 4270 (E7), NGC 7192 (S0), NGC 488 (Sa), NGC 1039 (Sb), NGC 628 (Sc), NGC 936 (SBa), NGC 5850 (SBb) NGC 7479 (SBc).

ImiThalakazi Eyingoqela

Ilona uhlobo olujwayelekile lemiThalakazi enguzunga kumkhathi oseduza. 'Inezingalo' eziyingoqela ezivulekayo buqamama neNdeni endumba.

Kwizingoqela, sithola amaFu aluthuli kanye nothuli lapho khona kudaleka iziNkanyezi ezintsha. Maphakathi nezingoqela kanye nakwiNdumba, kuneziNkanyezi ezindala. Ziphuzi kanti ziba nezigidigidi zeminyaka ubudala, kanti kwizingoqela kuneziNkanyezi eziluhlaza, ezinezigidi zeminyaka ubudala.

ImiThalakazi eyizingoqela ijwayele ukuba nenani leziNkanyezi eziyisigidigidi sekhulu

UmZilafasimbe uwumThalakazi oyingoqela.