cÂg Aa¨vq

AÜKvi Agvwbkv

AhyZ bÿ‡Îi Av‡jv wb‡q R¦‡j AvKvkM½v Qvqvc\_ (Milky Way galaxy)| cÖwZwU bÿ‡Îi Mjvq Szj‡Q g„Zz¨i c‡ivqvbv| AvR Avgiv hv‡`i‡K †`LwQ, GK nvRvi †KvwU eQ‡ii g‡a¨ Zv‡`i †ewkifvMB `„wó †\_‡K nvwi‡q hv‡e| gviv hv‡e R¦vjvwbi Afv‡e| ZvcMwZwe`¨vi wØZxq m~‡Îi Kj¨v‡Y|

wKš‘ AvKvkM½vq Zey bÿ‡Îi Av‡jv \_vK‡e| KviY g„Zz¨i mv‡\_ mv‡\_ Avevi Zv‡`i ¯’‡j bZzb bÿ‡ÎiI Rb¥ nq| Qvqvc‡\_i mwc©j evû‡Z \_vKv M¨vmxq †gN m¼zwPZ nq, gnvK‡l©i cÖfv‡e ¸wU‡q Av‡m I Avjv`v Avjv`v GK ¸”Q bÿ‡Îi Rb¥ †`q| Avgv‡`i m~h©I Ggb GKwU evû‡ZB Aew¯’Z| Kvjcyiæl ZvivgÐ‡ji w`‡K GK bRi ZvKv‡jI Ggb GKwU bvÿwÎK bvmv©wi Lyu‡R cvIqv hvq| Kvjcyiæ‡li Z‡jvqv‡ii †K‡›`ªi †Nvjv‡U Av‡jvLvbv †Kv‡bv ZviKv bq| GwU GKwU †beyjv ev bxnvwiKv| wekvj GK M¨vmxq †gN| mv‡\_ Av‡Q D¾¡j bZzb bZzb bÿÎ| `„k¨gvb Av‡jvi e`‡j Ae‡jvwnZ wewKiY w`‡q †R¨vwZwe©`iv GB bxnvwiKvq wKQz bÿÎ‡K Zv‡`i R‡b¥i G‡Kev‡i ïiæi `kv¸‡jv‡Z ch©‡eÿY K‡i‡Qb| Giv GLbI M¨vm I ay‡jvq †X‡K Av‡Q|

hZ w`b h‡\_ó M¨vm Av‡Q, Avgv‡`i Qvqvc‡\_i mwc©j evû¸‡jv‡Z bÿ‡Îi Rb¥ n‡ZB \_vK‡e| Qvqvc‡\_i M¨vm¸‡jvi wKQz Ask cÖviw¤¢K `kvq Av‡Q| GLbI †h¸‡jv bÿ‡Î cwiYZ n‡Z cv‡iwb| wKQz Ask Avevi mycvi‡bvfv we‡ùvi‡Yi gva¨‡g wewfbœ bÿÎ †\_‡K G‡m‡Q| A\_ev G‡m‡Q bvÿwÎK evqy, †QvU †QvU So I Ab¨vb¨ cÖwµqvi gva¨‡g| wbtm‡›`‡n GB cÖwµqvi cybive„wË Awbw`©ó mgq a‡i Pj‡Z cv‡i| cyivZb bÿÎiv gviv wM‡q I m¼zwPZ n‡q †k^Z evgb, wbDUªb bÿÎ eø¨vK †nvj n‡q †M‡j Avi AvšÍtbvÿwÎK ¯’v‡b bZzb c`v\_© mieivn Ki‡Z cvi‡e bv| ax‡i ax‡i cÖviw¤¢K M¨vm¸‡jv me bÿÎ n‡Z \_vK‡e| GK mgq ZvI †kl n‡q hv‡e| †k‡li w`‡Ki GB bÿÎ¸‡jvI Rxe‡bi cvV PzwK‡q gviv †M‡j Qvqvc\_ Lye Aby¾¡j n‡q hv‡e| Z‡e KvRUv ûU K‡i n‡q hv‡e bv| †QvU I bZzb bÿÎiv Zv‡`i wbDK¬xq `nb m¤ú~Y© K‡i ¸wU‡q †k^Z evgb n‡Z eû wewjqb eQi mgq jvM‡e| wKš‘ cÖwµqv axi n‡jI wefxwlKvgq AbšÍ ivZ GKw`b †b‡g Avm‡eB|

wPi cÖmviYkxj gnvk~‡b¨ Qwo‡q wQwU‡q \_vKv evwK me Qvqvc‡\_i Kcv‡jI H GKB wRwbm †jLv Av‡Q| wbDK¬xq kw³i Kj¨v‡Y eZ©gvb gnvwek^ R¦jR¦j K‡i Av‡jv w`‡”Q| wKš‘ GK w`b GB g~j¨evb Drm dzwi‡q hv‡e| Av‡jvi hyM wPiw`‡bi R‡b¨ we`vq n‡e|

Z‡e gnvRvMwZK Av‡jv dzwi‡q †M‡jB gnvwek^ gviv hv‡e bv| KviY kw³i Drm Av‡Q Av‡iKwU, hv wbDK¬xq wewµqvi †P‡qI kw³kvjx| cvigvYweK ¯Í‡i wPšÍv Ki‡j cÖK…wZi `ye©jZg ej gnvKl©| wKš‘ gnvRvMwZK gvcKvwV‡Z GB ejwUB ivRv| Gi cÖfve n‡Z cv‡i Lye g„`y| wKš‘ †mUv KvR K‡i Lye bv‡Qvoev›`vi g‡Zv| wewjqb wewjqb eQi hveZ bÿÎiv wbDK¬xq `n‡bi gva¨‡g wb‡R‡`i IRb‡K a‡i †i‡L‡Q| wKš‘ gnvKl© GZ w`b ïay IZ †c‡Z wQj|

GKwU cigvYyi wbDwK¬qv‡mi `ywU †cÖvU‡bi g‡a¨ wµqvkxj gnvKl© ej mej wbDK¬xq e‡ji GK k †KvwU †KvwU †KvwU †KvwU †KvwU †KvwU †KvwU fv‡Mi GK fvM (10-37)| wKš‘ gnvKl© ejwU µgea©gvb| cÖwZwU evowZ †cÖvUb evowZ IR‡bi †hvMvb †`q| †kl ch©šÍ gnvKl© ej AvMÖvmx n‡q `vuovq| cÖej kw³i †cQ‡b GB Zxeª ejB g~j f~wgKv iv‡L|

gnvK‡l©i ÿgZv me‡P‡q fv‡jvfv‡e cÖ`k©b K‡i eø¨vK †nvj| GLv‡b Rq n‡q‡Q eø¨vK †nv‡ji| m‡¼vP‡bi d‡j bÿ‡Îi AvqZb n‡q †M‡Q k~b¨| mg‡hi Amxg weK…wZi AvKv‡i Av‡kcv‡ki ¯’vbKv‡j †m NUbvi GKwU Qvc c‡o‡Q| eø¨vK †nvj wb‡q GKwU `viæY gvbm cixÿv (thought experiment) Av‡Q| g‡b Kiæb, A‡bK `~i †\_‡K GKwU †QvU, †hgb 100 MÖvg f‡ii e¯‘‡K eø¨vK †nv‡j †d‡j †`Iqv n‡jv| e¯‘wU `„wói Avov‡j nvwi‡q hv‡e Ges wPiZ‡i bvMv‡ji evB‡i P‡j hv‡e| Z‡e eø¨vK †nv‡ji KvVv‡gv GB NUbvi GKwU mvÿ¨ enb Ki‡e| e¯‘wU MjvatKiY K‡i eø¨vK †nv‡ji mvBR Lye mvgvb¨ cwigvY eo n‡e| wnmve K‡i †`Lv †M‡Q, e¯‘wU‡K A‡bK `~i †\_‡K †djv n‡j eø¨vK †nv‡ji fi hZUzKz evo‡e Zv e¯‘wUi g~j f‡ii mgcwigvY| Zvi gv‡b, fi ev kw³i GZUzKzI Ab¨ †Kv‡bv w`‡K hv‡e bv|

Gevi Ab¨ GKwU cixÿv| fiwU‡K Gevi ax‡i ax‡i eø¨vK †nv‡ji w`‡K bvgv‡bv n‡”Q| GUv Kivi Rb¨ e¯‘wUi mv‡\_ GKwU iwk jvMv‡Z n‡e| Gici †mUv‡K cywji Ici w`‡q Nywi‡q G‡b Wªv‡gi mv‡\_ mshy³ Ki‡Z n‡e| Wªv‡gi gva¨‡g Av‡¯Í Av‡¯Í iwki c¨vuP †Lvjv n‡e| (wPÎ 5.1 †`Lyb: Avgiv a‡i wbw”Q iwkwU cÖmvwiZ n‡e bv| †Kv‡bv IRbI \_vK‡e bv| ev¯Í‡e G `y‡Uvi †Kv‡bvwUB m¤¢e bq, wKš‘ RwUjZv cwinv‡ii R‡b¨ a‡i wb‡Z n‡”Q) fiwU‡K wb‡P bvgv‡bv n‡j GwU kw³ mieivn Ki‡Z cvi‡e| †hgb Wªv‡gi mv‡\_ hy³ ˆe`y¨wZK †Rbv‡iUi Pvjy Kivi gva¨‡g| e¯‘wU eø¨v‡K †nv‡ji c„‡ôi hZ †ewk wbKUeZx© n‡e, e¯‘wUi Ici †nv‡ji gnvKlx©q Uvb ZZ kw³kvjx n‡e| wb‡Pi w`‡K Uvb hZ evo‡e, e¯‘wU †Rbv‡iUi w`‡q ZZB †ewk KvR Kiv‡Z cvi‡e| mn‡RB wnmve Kiv hvq, e¯‘wU eø¨v‡K †nv‡ji c„‡ô †cŠuQ‡Z †cŠuQ‡Z †Rbv‡iUi‡K Kx cwigvY kw³ mieivn Ki‡e| Av`k© †ÿ‡Î Gi DËi n‡e, e¯‘wUi mgMÖ wbðj fi-kw³| (wbðj f‡ii aviYv 31 bs c„ôvq Av‡jvPbv Kiv n‡q‡Q|)

AvBb÷vB‡bi weL¨vZ E=mc2 m~ÎwU g‡b Av‡Q wbðqB| m f‡ii GKwU e¯Í †\_‡K mc2 cwigvY kw³ cvIqv hvq| ZË¡ ej‡Q, eø¨vK †nvj e¨envi K‡i fvM¨ †div‡bv m¤¢e| 100 MÖvg f‡ii e¯‘ †\_‡KB cvIqv hv‡e wZb k †KvwU wK‡jvIqvU-NÈv (gv‡b wZb k †KvwU BDwbU we`y¨r-Abyev`K) we`y¨r| Zzjbvi R‡b¨ e‡j ivwL, m~h© hLb 100 MÖvg R¦vjvwb wdDk‡bi gva¨‡g †cvovq, ZLb Gi GK fv‡MiI Kg kw³ mieivn K‡i| d‡j ZË¡ ej‡Q, gnvKlx©q Dcv‡q †h kw³ cvIqv hv‡e Zv bÿ‡Îi kw³ †RvMv‡bv Zvc-wbDK¬xq wdDk‡bi GK k ¸Y|

wPÎ 5.1

Av`k© GB gvbm cixÿvq GKwU iwki mvnv‡h¨ GKwU e¯‘‡K ax‡i ax‡i eø¨vK †nv‡ji c„‡ôi w`‡K bvgv‡bv nq| e¨envi Kiv nq GKwU cywj e¨e¯’v (wd·vi †`Lv‡bv nqwb)| d‡j, wb‡Pi bvgv e¯‘wU KvR Ki‡Z \_v‡K I e‡· kw³ cvVv‡Z \_v‡K| e¯‘wU hZB eø¨vK †nv‡ji c„‡ôi KvQvKvwQ n‡Z \_v‡K, cvVv‡bv †gvU kw³i cwigvY ZZB e¯‘wUi mgMÖ fi-kw³i cwigv‡Yi mgvb n‡Z \_v‡K|

GLv‡b †h `y‡Uv †KŠk‡ji K\_v ejv n‡jv Zvi `y‡UvB G‡Kev‡i Aev¯Íe| wbtm‡›`‡n eø¨vK †nv‡j e¯‘iv c‡o weiwZnxbfv‡e| kw³ D×vi Kivi g‡Zv K‡i my›`i Dcv‡q cywj †\_‡K Sz‡j \_v‡K bv| ev¯Í‡e wbðj f‡ii k~b¨ I GK k fv‡Mi gvSvgvwS gv‡bi †Kv‡bv kw³ cvIqv hv‡e| cÖK…Z gvbUv wbf©i Ki‡e †fŠZ cwiw¯’wZi Ici| MZ K‡qK `k‡K †R¨vwZc©`v\_©we‡`iv wewfbœ iKg Kw¤úDUvi wmgy‡jkb1 I MvwYwZK g‡Wj we‡‡kølY K‡i †`‡L‡Qb| D‡Ïk¨ n‡jv †cuwP‡q eø¨vK †nv‡ji †fZ‡i P‡j hvIqvi mgq M¨v‡mi Ae¯’v †Kgb nq Ges Kx ciwgvY I Kxfv‡e kw³ wegy³ nq Zv Rvbv| GLv‡b †h †fŠZ cÖwµqv¸‡jv msNwUZ nq †m¸‡jv †ek RwUj| ZeyI GUv †evSv hv‡”Q †h Gme RvqMv †\_‡K wecyj cwigvY gnvKlx©q kw³ †ewi‡q Avm‡Z cv‡i|

GKwU ch©‡eÿY †\_‡K Kiv m¤¢e nvRvi nvRvi wnmve-wbKvk| Gfv‡e e¯‘ wM‡j Lvevi mgq m¤¢ve¨ eø¨vK †nvj Lyu‡R cvIhvi R‡b¨ †R¨vwZwe©`iv eo AvKv‡i AbymÜvb Pvwj‡q‡Qb| GLb ch©šÍ AKvU¨fv‡e †Kv‡bv eø¨vK †nvj cvIqv hvqwb| Z‡e wmMbvm ev eKgÐjx‡Z Aew¯’Z GKwU wm‡÷g‡K †ek m¤¢vebvgq wn‡m‡e †`Lv hv‡”Q| bvg wmMbvm G·-1| AcwU‡Kj †Uwj‡¯‹v‡ci gva¨‡g GKwU e„nr I DËß bxj `vbe (blue giant) †kÖwYi ZviKv †`Lv †M‡Q| is bxj e‡jB bvg bxj `vbe n‡q‡Q| eYv©jx we‡køl‡Yi gva¨‡g †evSv hv‡”Q ZviKvwU GKv bq| wbqg †g‡b †gvPo Lv‡”Q GwU| Zvi gv‡b, Av‡kcv‡ki †Kv‡bv e¯‘i gnvKl© G‡K mgq mgq AvKl©Y Ki‡Q| Zvi gv‡b, wbwðZ K‡iB ejv P‡j, GB bÿÎ Ges Aci e¯‘wU G‡K Aci‡K Lye KvQ †\_‡K cÖ`wÿY Ki‡Q| wKš‘ AcwU‡Kj †Uwj‡¯‹v‡c Aci bÿÎwUi †`Lv †bB| nq GwU †Kv‡bv eø¨vK †nvj, bqZ Lye Aby¾¡j †Kv‡bv ÿz`ª Zviv| d‡j g‡b hv‡”Q GwU eø¨vK †nvj n‡Z cv‡i| Z‡e wbwðZ K‡i ejv hv‡”Q bv|

A`„k¨ e¯‘wUi fi †\_‡K cvIqv hvq Av‡iKwU Bw½Z| GUv wbDU‡bi m~Î †\_‡KB e‡j †`Iqv m¤¢e| Gi R‡b¨ ïay `iKvi bxj `vbe ZvivwUi fi Rvbv| bÿ‡Îi fi I is Gi g‡a¨ Lye Nwbô m¤úK© Av‡Q e‡j †mUvI mn‡RB †ei K‡i †djv hvq| bxj Zviviv DËß| d‡j Zv‡`i fi †ewk| wnmve †\_‡K aviYv Kiv hvq †h A`„k¨ m½x ZviKvwUi fi K‡qK †mŠi f‡ii mgZzj¨| cwi®‹vi †evSv hv‡”Q, GwU mvaviY †QvU I Aby¾¡j †Kv‡bv Zviv bq| Zvi gv‡b GwU †Kv‡bv m¼zwPZ fvix bÿÎB n‡e| †k^Z evgb, wbDUªb bÿÎ ev eø¨vK †nvj| wKš‘ wKQz †gŠwjK wdwR‡Kj Kvi‡Y G‡K GZ fvix ÿz`ª †Kv‡bv e¯‘ †k^Z evgb ev wbDUªb bÿÎ n‡Z cv‡i bv| G‡ÿ‡Î \_vKvi K\_v Zxeª gnvKlxq †ÿÎ, hv e¯‘wU‡K ¸wU‡q †dj‡Z m‡Pó \_vK‡e| m¤ú~Y© m¼zwPZ n‡q eø¨vK †nvj n‡q hvIqv †VKv‡bv hv‡e hw` †Kv‡bv cÖKvi Af¨šÍixY Pvc KvR K‡i| †hUv gnvK‡l©i m‡‡¼vP‡bi wecixZ w`‡K KvR Ki‡e| wKš‘ m¼zwPZ e¯‘wUi fi hw` nq K‡qK †mŠi f‡ii mgvb, Z‡e †Kv‡bv e‡ji c‡ÿB Gi `yg‡o hvIqv †VKv‡bv m¤¢e bq| Ges bÿÎwUi †Kvi hw` `ygov‡bv †VKv‡bvi g‡Zv `„p n‡Zv, Zvn‡j e¯‘wU‡Z k‡ãi †eM Av‡jvi †e‡Mi †P‡q †ewk n‡q †hZ| wKš‘ GUv we‡kl Av‡cwÿKZvi weiæ‡× hv‡”Q| d‡j †ewkifvM c`v\_© †R¨vwZwe©‡`i g‡Z Gme cwiw¯’wZ‡Z eø¨vK †nv‡ji Rb¥ Awbevh©|

wmMbvm G·-1 wm‡÷‡g eø¨vK †nvj \_vKvi mc‡ÿ wbwðZ cÖgvY G‡m‡Q Av‡iKwU m¤ú~Y© wfbœ ch©‡eÿY †\_‡K| Gi bvg G·-1 †`Iqvi KviY wm‡÷g G·-†i (iÄb iwk¥) Gi GKwU kw³kvjx Drm| K…wÎg DcMÖ‡n \_vKv †mÝ‡ii gva¨‡g kbv³ Kiv hvq †mB iwk¥| wmMbvm G·-1 Gi A`„k¨ e¯‘wU‡K eø¨vK †nvj a‡i wb‡j ZvwË¡K bgybv GB G·-†i‡K Lye fv‡jvfv‡e e¨vL¨v Ki‡Z cv‡i| eø¨vK †nv‡ji cwigvcK…Z gnvKl© †ÿÎ GZB kw³kvjx †h GwU bxj `vbe ZvivwU †\_‡K c`v\_© Lye‡j wb‡Z cv‡i| wQbZvB Kiv M¨vm P‡j hvq eø¨vK †nv‡ji w`‡K| wPiKv‡ji R‡b¨ we¯§„wZi AZ‡j| wm‡‡÷‡gi N~Y©‡bi Kvi‡Y cZbkxj c`v\_©¸‡jv eø¨vK †nv‡ji Pvicv‡k cvK Lv‡e| ˆZwi n‡e PvKwZi g‡Zv GKwU AvK„wZ| Ggb GKwU PvKwZi c‡ÿ cy‡ivcywi w¯’wZkxj nIqv m¤¢e bq| KviY †K‡›`ªi w`‡K \_vKv c`v\_© cªv‡šÍi w`‡K Aew¯’Z c`v‡\_©i Zzjbvq A‡bK `ªæZ cÖ`wÿY Ki‡e| mv›`ª ej2 GB welg N~Y©b‡K gm„Y Kivi †Póv Ki‡e| d‡j M¨v‡mi DËvc †e‡o hv‡e| G‡Z †ewk †h †mUv mvaviY Av‡jvi e`‡j G·-‡i wbM©Z Ki‡e| G‡Z K‡i M¨v‡mi †h Kÿxq kw³ e¨q n‡e Zvi d‡j Zv ax‡i ax‡i mwc©j c‡\_ eø¨vK †nv‡ji w`‡K cÖ‡ek Ki‡e|

d‡j wmMbvm G·-1 wm‡÷‡g eø¨vK †nvj \_vKvi cÖgvY `xN© GK mvwi hyw³i Ici wfwË K‡i `vuwo‡q Av‡Q| Kv‡R jvM‡Q ch©‡eÿY I ZË¡ `y‡UvB| †R¨vwZwe©`¨vi M‡elYv eZ©gvb mg‡q GgbB nq| GKwUgvÎ cÖgvY †Rviv‡jv f~wgKvi ivL‡Z cv‡i bv| wmMbvm G·-1 I GKB iKg AviI A‡bK¸‡jv wm‡÷g wb‡q hvPvB-evQvB K‡i g‡b n‡”Q eø¨vK †nvj Av‡Q| wbt‡m‡›`‡n eø¨v‡K †nv‡ji e¨vL¨vwUB me‡P‡q wbf©i‡hvM¨ I wb‡f©Rvj|

AviI eo eø¨vKiv Gi †P‡qI `k©bxq Kg©KvÐ Ki‡Z cv‡i| eZ©gv‡b G m¤¢vebv †ek D¾¦j †h †ewki Qvqvc‡\_i †K‡›`ªB mycvig¨vwmf ev AwZfvix eø¨vK †nvj i‡q‡Q| Gi cÖgvY n‡jv, Gme Qvqvc‡\_i †K›`ªgÐ‡ji Zviv¸‡jvi `ªæZ PjvPj| †`‡L g‡b n‡”Q Zviv¸‡jv GKwU Zxeª AvKl©Yagx© I Lye ÿz`ª e¯‘i w`‡K P‡j hv‡”Q| wnmve-wbKvk †\_‡K G iKg m¤¢ve¨ e¯‘‡`i fi GK †KvwU †\_‡K GK k †KvwU ch©šÍ cvIqv †M‡Q| d‡j Av‡kcv‡ki †h‡Kv‡bv wew”Qbœ e¯‘‡K †MvMÖv‡m wMj‡e Giv| m¤¢eZ bÿÎ, MÖn, M¨vm, ay‡jv—†KDB G `vbe‡`i \_vev †\_‡K evuP‡Z cv‡i bv| GB cZb cÖwµqvi Db¥v`bv †Kv‡bv †Kv‡bv †ÿ‡Î cy‡iv Qvqvc‡\_i KvVv‡gvB e`‡j †`q| mwµq Qvqvc\_ †K‡›`ªi (active galactic nuclei) eû iƒc‡f‡`i mv‡\_ cwiPq Av‡Q †R¨vwZwe`‡`i| †Kv‡bv †Kv‡bv Qvqvc‡\_i †Pnviv †`‡L †Zv g‡b nq gvÎ we‡ùviY NUj| wKQz wKQz Avevi †eZvi Zi½, G·-‡i ev kw³i Ab¨ iƒ‡ci kw³kvjx Drm| Z‡e me‡P‡q †Pv‡L covi g‡Zv NUbv n‡jv, wKQz wKQz M¨vjvw· Avevi M¨v‡mi Zxeª †RU ev †dvqviv wb‡ÿc K‡i| Ges GB †dvqvi ˆ`N¨© nvRvi nvRvi GgbwK wgwjqb wgwjqb gvBj Ry‡oI we¯Í…Z \_v‡K| G‡`i †Kv‡bv †Kv‡bvwUi kw³i D`MxiY LyeB we¯§qKi| †hgb eû `~‡ii †Kv‡bv †Kv‡bv †Kvqvmvi gvÎ GK Av‡jvKel© PIov GjvKv †\_‡K nvRvi nvRvi M¨vjvw·i mgvb kw³ D`MxiY Ki‡Z cv‡i| d‡j `~i †\_‡K †`‡L G‡`i‡K bÿ‡Îi g‡Zv jv‡M| †Kvqvmvi bvgUvB †Kvqvwm-‡÷jvi Gi mswÿß iƒc| gv‡b bÿ‡Îi g‡Zv e¯‘|

eû †R¨vwZwe©Ávbxi wek^vm, Zxeªfv‡e Av‡jvwoZ Gme e¯‘i †K‡›`ª cwiPvj‡Ki Avm‡b e‡m Av‡Q AveZ©bkxj eo eo eø¨vK †nvj| hviv Zv‡`i Avkcvk †\_‡K c`v\_© wQbZvB K‡i P‡j‡Q| eø¨vK †nv‡ji wbK‡U Avmv †h‡Kv‡bv Zviv nq eø¨vK †nv‡ji gnvK‡l©i cÖfv‡e wQbœwfbœ n‡q hv‡e A\_ev Ab¨ Zvivi mv‡\_ msNl© NwU‡q ZQbQ n‡q hv‡e| wQbœwfbœ c`v\_©¸‡jv m¤¢eZ DËß M¨v‡mi GKwU PvKwZ MVb Ki‡e, hv eø¨vK †nvj‡K †K›`ª K‡i Nyi‡e I µgk †fZ‡ii w`‡K cÖ‡ek Ki‡e| †hgbUv n‡q‡Q wmMbvm G·-1 Gi †ÿ‡Î| Z‡e GLv‡b PvKwZi mvBRUv n‡e AviI A‡bK †ewk eo| 1994 mv‡ji †g gv‡mi GKwU cÖwZ‡e`‡b ejv nq, nvej †¯úm †Uwj‡¯‹vc Gg87 M¨vjvw·i †K‡›`ª Lye `ªæZ N~Y©bkxj M¨v‡mi GKwU PvKwZ †`L‡Z †c‡q‡Q| ch©‡eÿ‡bi k³ Bw½Z n‡jv ILvbUvq Av‡Q GKwU mycvig¨vwmf eø¨vK †nvj|

m¤¢eZ eø¨vK †nv‡j cZbkxj M¨v‡mi PvKwZ †\_‡K wbM©Z wecyj cwigvY kw³ †nv‡ji NyY©b Aÿ w`‡q †ewi‡q Av‡m| d‡j cÖvqB `yB wecixZ w`‡K `ywU wfbœ †RU ˆZwi n‡Z †`Lv hvq| GB kw³ wbM©gb I †RU ˆZwii cÖwµqv m¤¢eZ Lye RwUj| G‡Z Zwo”Pz¤^KZ¡, mv›`ª I gnvKl©mn Ab¨vb¨ ej KvR K‡i| GB welqwU‡Z e¨vcK ZvwË¡K I ch©‡eÿYMZ M‡elYvii AeKvk Av‡Q|

wgwéI‡qi Kx Ae¯’v Zvn‡j? Avgv‡`i Qvqvc\_wUI GKBfv‡e Av‡jvwoZ n‡Z cv‡i? wgwéI‡hi †K›`ª cÖvq wÎk nvRvi Av‡jvKel© `~‡i Av‡Q| Ae¯’vb AvKv‡ki aby gÐjx‡Z (Sagittarius)| Gi †fZ‡ii GjvKvmg~n wecyj cwigvY M¨vm I ay‡jv Øviv †X‡K Av‡Q| ZvB †R¨vwZ©weÁvbxiv Kv‡R jvwM‡q‡Qb G·-‡i, Mvgv iwk¥ I Ae‡jvwnZ Av‡jvi hš¿| Gfv‡e GKwU wbweo Nb I †ZR¯^x e¯‘ Lyu‡R cvIhv †Mj| bvg m¨vRvB‡Uwiqvm G ÷vi| e¨vm K‡qK k †KvwU wK‡jvgwUiv‡ii †ewk bq (gnvRvMwZK gvcKvwV‡Z †QvUB Lye)| ZeyI GwUB Qvqvc‡\_i me‡P‡q kw³kvjx †eZvi Drm| GKB RvqMvq Avevi Av‡Q GKwU kw³kvjx Ae‡jvwnZ DrmI| cv‡kB Av‡Q GKwU wfbœagx© G·‡i e¯‘| cwiw¯’wZ Lye RwUj n‡jI g‡b n‡”Q GLv‡b AšÍZ GKwU fvix eø¨vK †nvj Av‡Q| †hwU ch©‡eÿ‡Y cvIqv wKQz NUbvi †cQ‡b `vqx|

Z‡e eø¨vK †nvjwUi fi m¤¢eZ eo †Rvi GK †KvwU †mŠi f‡ii mgvb| Zvi gv‡b, mycvig¨vwmf eø¨vK †nvj‡`i g‡a¨ Ae¯’vb G‡Kev‡i bx‡Pi w`‡K| wKQz wKQz M¨vjvw·i †K›`ª †\_‡K Zxeª kw³ I c`v\_© wbM©g‡bi Ggb †Kv‡bv cÖgvY †bB| Z‡e n‡Z cv‡i †mLvbKvi eø¨vK †nvj GLb myß Ae¯’vq Av‡Q| fwel¨‡Zi †Kv‡bv GK mgq hw` GwU AviI †ewk cwigvY M¨v‡mi mieivn cvq, Zvn‡j nqZ R¦‡j DV‡e| Ab¨‡`i g‡Zv GZUv Av‡jvob nqZ GwU bvI Zzj‡Z cv‡i| mwc©j evû‡Z \_vKv MÖn I bÿ‡Îi Ici GB cÖR¦j‡bi Kx cÖwZwµqv n‡e †mUv ¯ó bq|

Av‡kcv‡ki AÂ‡ji c`v\_© dzwi‡q hvIqv ch©šÍ eø¨vK †nvj wM‡j †bIqv Lvev‡ii wbðj f‡ii kw³ wbM©Z Ki‡Z \_vK‡e| mg‡qi mv‡\_ mv‡\_ AviI †ewk †ewk c`v\_© †c‡U hv‡e eø¨vK †nv‡ji| d‡j eø¨vK †nvj µgk eo n‡e| wL‡`I evo‡e mv‡\_ mv‡\_| GgbwK eû `~‡ii Kÿc‡\_i bÿÎivI †kl ch©šÍ Gi wkKv‡i cwiYZ n‡e| Gi KviY gnvKlx©q wewKiY| GB cÖwZwµqv Lye `ye©j n‡jI P~ovšÍ cwiYwZ Gi IciB wbf©i K‡i|

1915 mv‡j mvwe©K Av‡cwÿKZv `vuo Kiv‡bvi wVK ciciB AvBb÷vBb gnvKlx©q †ÿ‡Îi GKwU D‡jøL‡hvM¨ ˆewkó¨ Avwe®‹vi Ki‡jb| Z‡Ë¡i †ÿÎ mgxKiY¸‡jv we‡kølY K‡i wZwb †`L‡jb, Zi‡½i g‡Zv GK ai‡bi gnvKlx©q Av‡jvo‡bi c~ev©fvm cvIqv hv‡”Q| k~b¨¯’v‡b †hwU Av‡jvi †e‡o Qwo‡q c‡o| GB gnvKlx©q wewKiY g‡b Kwi‡q †`q Av‡jv I †eZvi Zi‡½i g‡Zv Zwo”Pz¤^Kxq wewKi‡Yi K\_v| Z‡e wecyj cwigvY kw³ enb Ki‡jI Zwo”Pz¤^Kxq wewKi‡Yi mv‡\_ Gi cv\_©K¨ Av‡Q| gnvKlx©q wewKiY c`v\_©‡K Av‡jvwoZ K‡i Zzjbvg~jK Kg ZxeªZvq| †hLv‡b Zv‡ii Rv‡ji g‡Zv bvRyK e¯‘I †eZvi Zi½‡K †kvlY K‡i wb‡Z cv‡i, †mLv‡b gnvKlx©q Zi½ GZ `ye©j cÖwZwµqv K‡i †h c„w\_ex †f` K‡iI P‡j †h‡Z cv‡i| Ges ej‡Z †M‡j GKUzI ZxeªZv bv Kwg‡qB| Avcwb hw` †Kv‡bv gnvKlx©q †jRvi evbvb, Zvn‡j GK wK‡jvIqv‡Ui GKwU ˆe`y¨wZK KzÐjxi mgvb Kg©`ÿZvq GK †KUwj cvwb Mig Ki‡Z n‡j GK jÿ †KvwU wK‡jvIqvU kw³i iwk¥ jvM‡e| cÖK…wZi Rvbv ej¸‡jvi g‡a¨ gnvKlx©q Ab¨‡`i Zzjbvq A‡bK †ewk `ye©j e‡jB GLv‡bI NU‡Q Zvi cÖwZdjb| †hgb, GKwU cigvYyi ˆe`y¨wZK kw³ I gnvKlx©q kw³i AbycvZ cÖvq 1040| Avgiv †h gnvKl© Abyfe KiwQ Zvi GKgvÎ KviY n‡jv ejwUi cÖfve †hvM‡evaK| d‡j MÖn‡`i g‡Zv e¯‘i †ÿ‡Î Gi f~wgKvB cÖKU n‡q I‡V|

gnvKl© Zi‡½i cÖwZwµqv †h ïay AwZgvÎvq `ye©j Ggb bq, Gi DrcwËI N‡U bxi‡e bxi‡e| ZË¡ ej‡Q, G wewKiY Drcbœ nq fi Av‡jvwoZ n‡j| †hgb m~‡h©i Pviw`‡K c„w\_exi MwZ AweiZ mvwi mvwi gnvKlx©q Zi½ Drcbœ Ki‡Q| wKš‘ †gvU Drcbœ ÿgZv gvÎ GK wgwjIqvU| GB kw³ n«v‡mi d‡j c„w\_exi Kÿc\_ GKUz GKUz K‡i †QvU n‡q hv‡”Q| Z‡e †mUv n‡”Q ax‡i| cÖwZ `k‡K GK †mw›UwgUv‡ii GK †KvwU †KvwU fvM nv‡i|

Z‡e †hme fvix e¯‘ Av‡jvi Lye KvQvKvwQ †e‡M PjvPj K‡i Zv‡`i K\_v Avjv`v| gnvKlx©q wewKi‡Yi cÖwZwµqvi †cQ‡b `ywU welq KvR Ki‡Z cv‡i| GKwU n‡jv AvKw¯§K I DËvj NUbv| mycvi‡bvfv we‡ùviY| hvi gva¨‡g GKwU bÿÎ ¸wU‡q eø¨vK †nv‡j cwiYZ nq| Ggb NUbvi d‡j Aí mg‡qj R‡b¨ gnvKl©xq wewKi‡Yi m‡¼Z ˆZwi n‡Z cv‡i| ¯’vwqZ¡ n‡Z cv‡i gvÎ K‡qK wgwj‡m‡KÛ| Ges mvaviYZ 1044 Ryj kw³ wbM©Z n‡Z cv‡i| (Gi mv‡\_ m~‡h©i Zvc Drcv`‡bi Zzjbv K‡i †`L‡Z cv‡ib| †mUv n‡jv †m‡K‡Û 3x1026 Ryj|

Av‡iKwU NUbv n‡jv D”P MwZi fvix e¯‘‡`i G‡K Ac‡ii Pvicv‡k cÖ`wÿY| †hgb, KvQvKvwQ Ae¯’v‡bi \_vKv `ywU bÿ‡Îi evBbvwi wm‡÷g †\_‡K AbeiZ wecyj gvÎvq gnvKl© wewKiY wbM©Z n‡e| G cÖwµqv fv‡jv KvR Ki‡e hw` `ywU cÖ`wÿYiZ bÿÎiv m¼zwPZ e¯‘ nq| GB †hgb wbDUªb bÿÎ ev eø¨vK †nvj| CMj gÐjx‡Z (Aquila) `ywU wbDUªb bÿÎ gvÎ K‡qK wgwjqb wK‡jvwgUvi `~i †\_‡K G‡K Aci‡K cÖ`wÿY Ki‡Q| G‡`i gnvKlx©q †ÿÎ GZ kw³kvjx †h AvU NÈvi g‡a¨B GKwU N~Y©b m¤úbœ nq| d‡j bÿÎ¸‡jv Av‡jvi †gvUvgywU Kv‡Qi †eM wb‡qB Pj‡Q| GB `ªæZ MwZi Kvi‡Y gnvKlx©q Zi½ wbM©g‡bi nviI †ewk| d‡j cÖwZ eQi Zv‡`i Kÿc\_ D‡jøL‡hvM¨ nv‡i (cÖvq 75 gvB‡µv‡m‡KÛ) †QvU n‡”Q| GB nvi µgkB evo‡Z \_vK‡e| GLb †\_‡K 30 †KvwU eQi ci Zviv G‡K Ici ûgwo †L‡q co‡e|

‡R¨vwZwe©`‡`i wnmve g‡Z, cÖwZ Qvqvc‡\_ cÖvq cÖwZ GK jÿ eQ‡i GKwU evBbvwi RMr Gfv‡e wg‡k hvq| Giv GZUv wbweo I G‡`i gnvKl©xq †ÿÎ GZUv kw³kvjx †h Giv †kl gyû‡Z© wg‡k hvIqvi Av‡Mi gyû‡Z© cÖwZ †m‡K‡Û G‡K Aci‡K nvRvi nvRvi evi Ny‡i Avm‡e| gnvKl© Zi‡½i wbM©gbI ûU K‡i †e‡o hv‡e| AvBb÷vB‡bi m~Î ej‡Q, GB †kl Ae¯’vq gnvKlx©q kw³i Drcv`b n‡e A‡bK †ewk| Kÿc\_ Lye `ªæZ †QvU n‡q hv‡e| cvi¯úwiK gnvKlx©q Uv‡bi d‡j bÿ‡Îi †Pnviv GK`g e`‡j hv‡e| d‡j G‡K Aci‡K ¯úk© Kivi mgq Zv‡`i‡K N~Yv©qgvb AwZKvq Pziæ‡Ui g‡Zv †`Lv‡e| `y‡Uvi GKxfeb n‡e GK DËvj NUbv| `y‡Uv bÿÎ †Rvov †j‡M GKwU RwUj I Db¥Ë f‡i cwiYZ n‡e| G †\_‡KI wbM©Z n‡e Kvwo Kvwo gnKl© Zi½| †kl ch©šÍ GwU cÖvq †Mvj‡Ki iƒc aviY Ki‡e| GKwU eo NÈvi g‡Zv K‡i wbw`©ó bKkvi K¤úb wb‡q evR‡e I Av‡›`vwjZ n‡e| GB ¯ú›`b †\_‡KI wKQz gnvKl© wewKiY †ei n‡e| d‡j e¯‘wU AviI wKQz kw³ nviv‡e| Av‡¯Í Av‡¯Í GwU kvšÍ n‡q Avm‡e| †kl‡gl bxie n‡q hv‡e|

kw³ ÿ‡qi nvi Zzjbvg~jK axi n‡jI gnvwe‡k^i KvVv‡gvi Ici gnvKlx©q wewKiY wbM©g‡bi eo `xN©‡gqv`x cÖfve KvR K‡i| d‡j weÁvbx‡`i R‡b¨ eo GKwU KvR n‡jv, ch©‡eÿ‡Yi gva¨‡g gnvKlx©q wewKi‡Yi aviYv¸‡jvi mZ¨Zv hvPvB Kiv3| CMj gÐjxi evBbvwi wbDUªb bÿÎ e¨e¯’v wb‡q we‡kølY Pvwj‡q †`Lv †M‡Q, Kÿc\_ †QvU n‡”Q AvBb÷vB‡bi ZË¡ †g‡bB| d‡j gnvKlx©q wewKiY wbM©g‡bi mc‡ÿ GwU GKwU mivmwi cÖgvY| Z‡e AviI wbwðZ n‡Z n‡j c„w\_exi †Kv‡bv cixÿvMv‡i G‡K kbv³ Ki‡Z cvi‡Z n‡e| gnvKl© Zi½ aivi R‡b¨ eû M‡elbv `j hš¿ evwb‡q‡Qb| Z‡e AvR ch©šÍ †Kv‡bv hš¿B G Zi½ aivi g‡Zv ms‡e`bkxj n‡Z cv‡iwb| gnvKlx©q wewKi‡Yi wbwðZ cÖgvY †c‡Z n‡j Avgv‡`i‡K m¤¢eZ bZzb cÖR‡b¥i wW‡U±‡ii R‡b¨ A‡cÿv Ki‡Z n‡e|

`y‡Uv wbDUªb bÿ‡Îi wgj‡b GKwU eo wbDUªb bÿÎ ev eø¨vK †nvj ˆZwi n‡Z cv‡i| GKwU wbDUªb bÿÎ I GKwU eø¨vK †nvj ev `ywU eø¨vK †nvj wg‡j Aek¨B GKwU eø¨vK †nvj ˆZwi Ki‡e| evBbvwi wbDUªb bÿÎ‡`i g‡ZvB G‡ÿ‡ÎI wKQz gnvKlx©q Zi½ kw³ ÿq n‡e| mv‡\_ \_vK‡e evRbv I K¤úb| gnvKl© Zi‡½i ÿgZv Kgvi mv‡\_ mv‡\_ G cÖwµqvI axi n‡q Avm‡e|

eø¨vK †nv‡ji wgjb †\_‡K †h gnvKlx©q kw³ msMÖn Kiv hv‡e Zvi ZvwË¡K Av‡jvPbv †ek AvKl©Yxq| 1970 Gi `k‡K GB ZvwË¡K welq¸‡jv wb‡q KvR K‡ib iRvi †cb‡ivR, w÷‡db nwKs, eª¨vÛb KvUv©i, †i‡gv ivwdwb, j¨vwi ¯§vi cÖgyL| hw` eø¨vK †nvj `ywU AN~Y©bkxj I GKB f‡ii nq, Zvn‡j †gvU fi-kw³i cÖvq 29 kZvsk msMÖn Kiv hv‡e| AvaywbK cÖhyw³ ev Ab¨ †Kv‡bv †KŠkj Kv‡R jvMv‡Z cvi‡j nqZ H kw³UzKz ïay gnvKlx©q wewKiY wn‡m‡e mxgve× \_vK‡e bv| Z‡e cÖvK…wZKfv‡e eø¨vK †nv‡ji wgjb N‡U †M‡j †ewkifvM kw³B wKš‘ GB cÖvq A`„k¨ iƒc a‡iB Avm‡e| eø¨vK †nvjiv hw` c`v\_©we`¨vi AvB‡b Aby‡gvw`Z m‡ev©”P nv‡i (cÖvq Av‡jvi †e‡M) G‡K Ac‡ii D‡ëv w`‡K Ny‡i wgwjZ nq, Zvn‡j 50 fvM fi-kw³ wbM©Z n‡e|

Aek¨ ZvwË¡Kfv‡e GZ †ewk ciwgvYUvI m‡ev©”P mxgv bq| eø¨vK †nv‡ji Avevi ˆe`y¨wZK PvR©I \_vK‡Z cv‡i| GKwU PvwR©Z eø¨vK †nv‡ji ˆe`y¨wZK †ÿÎ †hgb \_v‡K, †Zgwb \_v‡K gnvKlx©q †ÿÎ| `ywU †ÿ‡Î kw³ aviY Ki‡Z mÿg| abvZ¥K PvR©avix GKwU eø¨vK †nvj FYvZ¥K PvR©avix Aci GKwU eø¨vK †nv‡ji mv‡\_ wgwjZ n‡j wKQz kw³ wbM©Z nq| GB cÖwµqvq we`y¨r‡PŠ¤^Kxq Ges gnvKlx©q `yB iKg kw³B †ewi‡q Av‡m|

GB wbM©g‡bi GKwU mxgv Av‡Q| KviY GKwU wbw`©ó f‡ii GKwU eø¨vK †nvj †Kej GKwU m‡ev©”P mxgvi ˆe`y¨wZK PvR© enb Ki‡Z cv‡i| GKwU AN~Y©bkxj eø¨vK †nv‡ji R‡b¨ †mB mxgv wba©vwiZ nq Gfv‡e: `y‡Uv AweKj GKB iKg eø¨vK †nv‡ji K\_v fveyb| G‡`i PvR© GKB| K…òMnŸi‡`i gnvKlx©q ‡ÿ‡Îi d‡j G‡`i g‡a¨ AvKl©Y KvR Ki‡e| Ab¨ w`‡K, Zwor e‡ji Kvi‡Y KvR Ki‡e weKl©Y (mgagx© PvR© weKl©Y K‡i)| PvR© I f‡ii AbycvZ GKwU msKU gv‡b †cŠuQ‡j GB `yB wecixZagx© ej G‡K Ac‡ii mgvb n‡q hvq| d‡j K…òMnŸi‡`i g‡a¨ †Kv‡bv †bU ej \_vK‡e bv| GKwU K…òMnŸ‡ii m‡ev©”P Kx cwigvY ˆe`y¨wZK PvR© \_vK‡Z cvi‡e Zv GB k‡Z©i gva¨‡gB wba©vwiZ nq| nqZ fve‡Qb, K…òMnŸ‡ii PvR© Gi †P‡q †ewk Kivi †Póv Ki‡j Kx NU‡e? GUv Kivi GKwU Dcvq n‡jv K…òMnŸ‡i AviI †ewk PvR© cÖ‡ek Kwi‡q †`Iqv| Gi gva¨‡g ˆe`y¨wZK PvR© evo‡e| wKš‘ ˆe`y¨wZK weKl©Y †VKv‡Z †h KvR m¤úbœ n‡e Zv‡Z wKQz kw³ e¨q n‡e| GB kw³UzKzI K…òMnŸ‡i cÖ‡ek Ki‡e| †h‡nZz kw³I f‡ii Av‡iK iƒc (E=mc2 m~ÎwU g‡b K‡i †`Lyb), d‡j K…ònŸi fvix I eo n‡q hv‡e| mn‡RB wnmve K‡i †`Lv‡bv hvq, GB cÖwµqvq fi Pv‡R©i †P‡q †ewk ev‡o| d‡j PvR© I f‡ii AbycvZ Avm‡j K‡g hvq| Avi GB mxgv AwZµg Kivi cÖ‡PóvI nq e¨\_©|

GKwU PvwR©Z K…òMnŸ‡ii ˆe`y¨wZK †ÿÎ Gi †gvU f‡ii wKQz As‡ki †hvMvb †`q| m¤¢ve¨ m‡ev©”P PvR© aviYKvix K…òMnŸ‡ii †ÿ‡Î ˆe`y¨wZK †ÿÎ †\_‡K Av‡m A‡a©K fi| hw` `ywU AveZ©bnxb K…òMnŸ‡ii g‡a¨ wecixZ wP‡ýi m‡ev©”P PvR© \_v‡K, Zvn‡j Zviv G‡K Aci‡K gnvKlx©q ej Øviv AvKl©Y Ki‡e, Avevi ˆe`y¨wZK ej ØvivI AvKl©Y Ki‡e| Zviv wgwjZ n‡q †M‡j †e`y¨wZK PvR© cÖkwgZ n‡q hv‡e| ˆe`y¨wZK PvR© †ei K‡iI †bIqv hv‡e| ZvwË¡Kfv‡e GUv H wm‡÷‡gi †gvU f‡ii 50 kZvsk ch©šÍ n‡Z cv‡i|

kw³ msMÖ‡ni cig m‡ev©”P mxgv AR©b Kiv m¤¢e n‡e hw` `ywU eø¨vK †nvjB AveZ©b Ki‡Z \_v‡K Avi hw` Zv‡`i ˆe`y¨wZK PvR© nq wecixZagx©| Zvn‡j †gvU fi-kw³i `yB-Z…Zxqvsk ch©šÍ wbM©Z n‡e| GUv wVK †h GB gvb¸‡jvi ¸iæZ¡ Av‡Q ïay ZvwË¡K `„wó‡KvY †\_‡KB| KviY ev¯Íe GKwU eø¨vK †nv‡ji A‡bK †ewk ˆe`y¨wZK PvR© \_vKvi m¤¢vebv Lye Kg| ZvQvov `ywU eø¨vK †nvj †h Av`k© Dcv‡qB wgwjZ n‡e †m m¤¢vebvI Kg| hw` bv †Kv‡bv DbœZ cÖhyw³i AwaKvix RvwZ †mUv NUv‡Z mÿg nq| Z‡e `ywU eø¨vK †nvj hw` Lye †ewk Av`k© Dcv‡q wgwjZ bvI nq ZeyI m¤¢eZ cÖvq ZvrÿwYKfv‡e kw³ wbM©Z n‡e| `ywU e¯‘i wgwjZ fi-kw³i D‡jøL‡hvM¨ GKwU Ask kw³B Gfv‡e wbM©Z n‡e| GUv‡K eû eQi a‡i Pj‡Z \_vKv bÿ‡Îi wbDwK¬qvi wdDkb wewµqvi mv‡\_ Zzjbv Kiv †h‡Z cv‡i, hvi gva¨‡g bÿÎ gvÎ GK kZvsk kw³ wbM©Z K‡i|

GB gnvKlx©q NUbv GKwU w`K †\_‡K LyeB ¸iæZ¡c~Y©| wdDkb wewµqvi R¦vjvwb †kl n‡q †M‡jB †h GKwU bÿÎ G‡Kev‡i gviv hvq Zv wKšÍ bq| GKwU msKzwPZ A½v‡i cwiYZ nevi ci GKwU D¾¡j M¨vmxq †MvjK AvKv‡i bÿÎwU wdDkb wewµqvi †P‡qI A‡bK †ewk cwigvY kw³ wbM©Z Kivi ÿgZv iv‡L| G welqwU fv‡jv K‡i †evSv †M‡Q cÖvq wek eQi Av‡M| G aviYv Kv‡R jvwM‡q c`v\_©we` I *eø¨vK †nvj* k‡ãi RbK Rb ûBjvi GKwU mf¨Zvi K\_v Kíbv K‡i‡Qb, hviv Zv‡`i DË‡ivËi kw³i Pvwn`vi K\_v we‡ePbv K‡i wb‡R‡`i bÿ‡Îi RMr †\_‡K †ewi‡q G‡m GKwU N~Y©bkxj eø¨vK †nv‡ji cv‡k evwo evwb‡q‡Q| cÖwZw`b Zviv Zv‡`i eR©©¨¸‡jv Uªv‡K fwZ© K‡i Lye wn‡me K‡i evbv‡bv c‡\_ eø¨vK †nv‡ji w`‡K cvwV‡q †`q| eø¨vK †nv‡ji Kv‡Q G‡m Uªv‡Ki c`v\_©¸‡jv †X‡j †`Iqv nq| Gfv‡e wPiKv‡ji R‡b¨ eR©¨¸‡jvi mwVK e¨e¯’vcbv wbwðZ nq|

cZbkxj e¯‘¸‡jv eø¨vK †nv‡ji w`‡K GwM‡q hvevi mgq †nv‡ji D‡ëv w`‡K AveZ©b K‡i| d‡j eø¨vK †nv‡ji N~Y©b wKwÂZ evavMÖ¯’ nq| d‡j eø¨vK †nv‡ji GB N~Y©bkw³UzKz †ewi‡q Av‡m| d‡j DbœZ mf¨Zvi gvby‡liv Zv‡`i wkí-KviLvbvq †mB kw³ e¨envi Ki‡Z cv‡i|4 d‡j GB c×wZi `y‡Uv jvf| me¸‡jv eR¨© wPiZ‡i we`vq n‡jv| wKš‘ we`vq nevi mgq w`‡q †Mj g~j¨evb A‡bKLvwb kw³| Gfv‡e H mf¨Zvi gvby‡liv cÖ‡qvR‡bi Av‡jv‡K GKwU g„Z bÿÎ †\_‡K wecyj cwigvY kw³ mÂq Ki‡Z cv‡ib| hZUv kw³ bÿÎwU Zvi cy‡iv Av‡jv‡Kv‡¾¡vj5 Rxe‡bI wbM©Z K‡iwb|

GUv wVK †h eø¨vK †nvj †\_‡K kw³ mÂ‡qi welqUv‡K weÁvb KíMí g‡b n‡”Q| Z‡e cÖvK…wZKfv‡eB cÖPzi cwigvY c`v‡\_©i Awbevh© wVKvbv wKšÍ eø¨vK †nvj| †mUv n‡Z cv‡i `yBfv‡e| nq c`v\_©¸‡jv Ggb GK bÿ‡Îi Dcv`vb †hwU msKzwPZ n‡q eø¨vK †nv‡j cwiYZ n‡Z hv‡”Q| A\_ev c`v\_©¸‡jv †Kv‡bvfv‡e eø¨vK †nv‡ji Lvev‡i cwiYZ n‡e| eø¨vK †nvj wb‡q †jKPvi w`‡Z †M‡jB gvbyl Avgv‡K wR‡Ám K‡i, †Kv‡bv wKQz eø¨vK †nv‡j P‡j †M‡j Zvi Kx N‡U? Aí K\_vq DËi n‡jv, Avgiv Rvwb bv| ejv P‡j, eø¨vK †nvj m¤ú‡K© Avgv‡`i Rvbvi GKgvÎ Dcvq ZvwË¡K chv©‡jvPbv I MvwYwZK g‡Wwjs| GKUz Av‡M †hUv ejjvg GUvI|

eø¨vK †nv‡ji msÁv Abymv‡iB wKš‘ Avgiv evB‡i †\_‡K Gi †fZ‡ii wKQz †`L‡Z cvB bv| AZGe, Avgv‡`i eø¨vK †nvj ch©šÍ ch©‡eÿ‡Yi my‡hvM \_vK‡jI (‡hUv Avm‡j Avgv‡`i †bB) Gi †fZiUvq Kx Pj‡Q †mUv Avgiv KLbI Rvbe bv| Z‡e G‡ÿ‡Î Av‡cwÿKZv ZË¡ Avgv‡`i‡K Avkvi Av‡jv †`Lvq| eø¨vK †nv‡ji Aw¯Í‡Ë¡i K\_vI Rvwb‡qwQj GB ZË¡wUB| †Kv‡bv b‡fvPvix eø¨vK †nv‡ji †fZ‡i P‡j Kx NU‡e ZË¡wUi gva¨‡g Avgiv †mUv Abygvb Ki‡Z cvwi| GLb Avgiv GB ZvwË¡K djvdj¸‡jvi mvigg©B †`Le|

eø¨vK †nv‡ji c„ô Avm‡j wbQKB GKwU MvwYwZK KvVv‡gv| mwZ¨Kvi †Kv‡bv c„‡ôi wKš‘ †Kv‡bv Aw¯ÍË¡ †bB| Av‡Q ïayB dvuKv ¯’vb| cZbkxj b‡fvPvix †fZ‡i cÖ‡e‡ki mgq we‡kl wKQzB †`L‡eb bv| Zvic‡iI c„‡ói wKš‘ GKwU wbw`©ó I wKQzUv PgKcÖ` †fŠZ (physical) Zvrch© Av‡Q| †nv‡ji †fZ‡i gnvKl© GZ kw³kvjx †h Av‡jvB AvU‡K Av‡Q| †ei n‡Z B”QzK Av‡jvi †dvUb KYv wcwQ‡q Avm‡Z eva¨ nq| Zvi gv‡b, eø¨vK †nvj †\_‡K Av‡jv †ewi‡q Avm‡Z cv‡i bv| Avi G Kvi‡YB evB‡i †\_‡K eø¨vK †nvj‡K †`Lv hvq bv| Avi †Kv‡bv e¯‘ ev Z\_¨ Av‡jvi †P‡q †Rv‡i QzU‡Z cv‡i bv e‡j GKevi Gi mxgvbvq cÖ‡ek K‡i †dj‡j †Kv‡bv wKQzB Avi †mLvb †\_‡K †ei n‡Z cv‡i bv| †h mg¯Í NUbv eø¨vK †nv‡ji Af¨šÍ‡i NU‡e, Zv wPiKvjB evB‡ii `k©‡Ki `„wói Avov‡jB †\_‡K hv‡e| G Kvi‡Y eø¨vK †nv‡ji c„ô‡K6 ejv nq NUbv w`MšÍ (event horizon)| KviY GB w`MšÍ eø¨vK †nv‡ji †fZ‡i I evB‡i NUv NUbv‡K Avjv`v K‡i †`q| w`M‡šÍi †fZ‡ii NUbv Avgiv †`wL bv| †`wL evB‡ii NUbv| Z‡e `„wói Avovj nevi welqwU wKš‘ GKgyLx| eø¨vK †nv‡ji †fZ‡ii b‡fvPvix‡K Avgiv bv †`L‡jI b‡fvPvix wKš‘ †fZi †\_‡K evB‡ii gnvwek^ cv‡eb|

b‡fvPvix hZB †fZ‡i hv‡eb, gnvK‡l©i \_vev ZZB evo‡e| Gi GKwU cÖfve n‡jv kvixwiK weK…wZ| b‡fvPvixi cv cÖ\_‡g eø¨vK †nv‡j cÖ‡ek Ki‡j gv\_vi †P‡q cv Gi †K›`ª †ewk Kv‡Q \_vK‡e| d‡j gnvK‡l©i kw³ cv‡q †ewk Abyf~Z n‡e| d‡j, cv‡q bx‡Pi w`‡K Zxeª Uvb Abyf~Z n‡e| d‡j b‡fvPvixi kixi ˆ`N¨© eivei cÖmvwiZ n‡q hv‡e| GKB mv‡\_ Ges GKB w`‡K wKšÍ b‡fvPvixi Nv‡oI Uvb co‡e| d‡j f`ª‡jvK wPKbI n‡q hv‡eb| GB †h j¤^v I wPKb n‡q hvevi cÖwµqv, G‡K A‡bK mgq ejv nq ù¨v‡NwUwd‡Kkb ev †mgvB cÖfve (spaghettification)|

ZË¡ ej‡Q, eø¨vK †nv‡ji †K‡›`ª gnvKl© n‡q hvq mxgvnxb| Avi gnvK‡l©i ewntcÖKvk †Zv N‡U ¯’vb-Kv‡ji eµZvi gva¨‡g| d‡j gnvKl© kw³kvjx nevi mv‡\_ mv‡\_ ¯’vb-Kv‡ji eµZvI n‡q hvq mxgvnxb| MwY‡Zi fvlvq G Ae¯’vi bvg †¯úmUvBg wm½yjvwiwU| GUv n‡jv ¯’vb-Kv‡ji Ggb GKwU mxgvbv ev cÖvšÍ hv‡Z ¯’vb-Kv‡ji mvaviY aviYvi †Kv‡bv ¯’vb †bB| eû c`v\_©we‡`i wek^vm, eø¨vK †nv‡ji †fZ‡ii wm½yjvwiwU mwZ¨Kvi A‡\_©B ¯’vb-Kv‡ji Kei iPbv K‡i| †Kv‡bv e¯‘ GLv‡b †cŠu‡Q †M‡j aŸsm Awbevh©| Avm‡jB hw` †mUv nq, Zvn‡j b‡fvPvixi kixi P‡j hv‡e wm½yjvwiwU‡Z| Zxeª †mgvB cÖfv‡ei GB KvRwU‡Z mgq jvM‡e gvÎ GK b¨v‡bv‡m‡KÛ7|

Avgv‡`i AvKvkM½v Qvqvc‡\_ \_vKv m¤¢ve¨ eø¨vK †nv‡ji fi GK †KvwU †mŠif‡ii mgvb| Ggb f‡ii I AN~Y©bkxj †Kv‡bv eø¨vK †nv‡ji †ÿ‡Î NUbv w`MšÍ †\_‡K wm½yjvwiwU‡Z wM‡q cUj Zzj‡Z mgq jvM‡e cÖvq wZb wgwbU| GB †kl wZwb wgwbU (jv÷ w\_ª wgwbUm) †gv‡UI Avivg`vqK n‡e bv| ev¯Í‡e Avm‡j wm½yjvwiwU‡Z hvevi eû Av‡MB †mgvB cÖfv‡ei Kvi‡Y †ePviv gviv co‡eb| GB †kl mg‡q b‡fvPvix gnvkq †Kv‡bvfv‡eB cÖvYNvZx wm½yjvwiwU‡K †Pv‡L †`L‡Z cvi‡e bv| KviY GB we›`ywU †\_‡K †Kv‡bv Av‡jv Avm‡Z cv‡i bv| eø¨vK †nvjwUi fi hw` gvÎ GK †mŠif‡ii mgvb nq, Zvn‡j Gi e¨vmva© n‡e cÖvq wZb wK‡jvwgUvi| G‡ÿ‡Î NUbv w`MšÍ †\_‡K wm½yjvwiwU‡Z †cŠuQ‡Z mgq jvM‡e gvÎ K‡qK gvB‡µv‡m‡KÛ8|

cZbkxj b‡fvPvixi cÖmsM KvVv‡gv †\_‡K aŸsm n‡Z mgq jv‡M Lye Kg mgq| Z‡e eø¨vK †nv‡ji mg‡qi weK…wZUv Ggbfv‡e N‡U †h `~i †\_‡K †`L‡j b‡fvPvixi †k‡li w`‡Ki ågY‡K Lye ax‡i Pj‡Q e‡j g‡b n‡e| b‡fvPvix NUbv w`M‡šÍi hZ Kv‡Q hv‡eb, `~‡ii `k©‡Ki Kv‡Q b‡fvPvixi Av‡kcv‡ki NUbv¸‡jv ZZ †ewk ax‡i Pj‡Q e‡j g‡b n‡Z \_vK‡e| Ges Avm‡j g‡b n‡e b‡fvPvix‡K NUbv w`M‡šÍ †cŠuQ‡Z Amxg cwigvY mgq jvM‡Q| d‡j evB‡ii `ywbqvq †hUv‡K Amxg mgq g‡b n‡”Q, b‡fvPvix †mUvi wkKvi n‡”Qb gyn~‡Z©i g‡a¨B| GB w`K †\_‡K fve‡j eø¨vK †nvj Avm‡j gnvwe‡k^i †kl cÖv‡šÍi GKwU `iRv| GKwU gnvRvMwZK AÜMwj| †ei nevi Ggb GK c\_ †h c\_ wb‡q hv‡e bv †Kv‡bv wVKvbvq| eø¨vK †nvj ¯’v‡bi Lye †QvÆ GKwU AÂj| mg‡qi BwZ †hLv‡b| hviv gnvwe‡k^i cwiYwZ m¤ú‡K© Rvb‡Z B”QzK, GKwU eø¨vK †nv‡j Svuc w`‡q †mUv Zviv wb‡RivB †R‡b wb‡Z cvi‡eb|

GUv wVK †h gnvKl©B cÖK…wZi me‡P‡q `ye©j ej| wKš‘ Gi Zxÿè‡f`x I mw¤§wjZ wµqvi IciB wbf©i Ki‡Q fwel¨r| wew”Qbœ gnvRvMwZK e¯‘ wKsev mgMÖ gnvwek^ `y‡Uvi R‡b¨B GB K\_v cÖ‡hvR¨| †h Zxeª gnvKlx©q AvKl©Y GKwU bÿ‡Î ¸wU‡q †d‡j, †mB GKB gnvKl© KvR K‡i mvwe©Kfv‡e gnvwe‡k^i AviI eo †¯‹‡jI| GB AvKl©‡Yi dj Lye m~²fv‡e wbf©i K‡i AvKl©Y m„wói R‡b¨ Dcw¯’Z e¯‘i cwigv‡Yi Ici| †mUv Rvb‡Z n‡j Avgv‡`i‡K gnvwe‡k^i IRb cwigvc Ki‡Z n‡e|

Abyev`‡Ki †bvU:

1. ev¯Í‡e Kiv Am¤¢e ev KwVb Ggb †ÿ‡Î we‡klZ Kw¤úDUv‡i mvnv‡h¨ welqwU wb‡q KvR Kivi bvg wmgy‡jkb| †hgb, Kw¤úDUvi †cÖvMÖv‡g eø¨vK †nv‡ji bgybv evbv‡bv| †Kv‡bv Z‡Ë¡i MÖnY‡hvM¨Zv wbY©q Kivi R‡b¨ A‡bK mgq Kw¤úDUvi wmgy‡jkb K‡i †WUv ˆZwi Kiv nq| MwYZ I cwimsL¨v‡bi Gi e¨envi Lye †ewk| Z‡e Kw¤úDUvi QvovI wmgy‡jkb nq| †hgb 2q wek^hy‡×i mgq ˆmb¨‡`i Abykxjb Kiv‡bvi R‡b¨ Kv‡Vi bKj †Nvovi cÖPjb wQj| AvRKvj evmvq †`Šov‡bvi R‡b¨ †UªWwgj Lye RbwcÖq| bKj †`Š‡oi G c×wZI wKš‘ GK ai‡bi wmgy‡jkb|
2. cÖevnxi (Zij ev M¨vm) wewfbœ ¯Í‡ii g‡a¨ Nl©‡Yi d‡j D™¢~Z ej|
3. 2015 mv‡j gnvKl© Zi½ cÖ\_g mivmwi ch©‡eÿY Kiv m¤¢e nq| wbwðZ n‡q †NvlYv †`Iqv nq 2016 mv‡j| 2017 mv‡j G wel‡q c`v\_©we`¨vq †bv‡ej cyi¯‹vi jvf K‡ib wKc \_b©mn wZbRb weÁvbx|
4. GUvi mv‡\_ wgj Av‡Q ev¯Í‡e cÖ‡qvM Kiv GKwU †KŠk‡ji| bvg MÖ¨vwf‡Ukbvj w¯øskU| c„w\_ex †\_‡K `~i gnvKv‡k hvb †cÖi‡Yi mgq G‡K GK ev GKvwaK MÖ‡ni Kÿc‡\_i Lye Kv‡Q cvwV‡q †`Iqv nq| Av‡M †\_‡K \_vKv wbR¯^ †e‡Mi Kvi‡Y MÖnwUi gnvKl© gnvKvkhvb‡K cy‡ivcywi AvU‡K †dj‡Z cv‡i bv| gnvKvkhvb c‡i Avevi mswkøó e¯‘i gnvKl© †ÿÎ †\_‡K †ewi‡q Av‡m| wKš‘ mv‡\_ wb‡q Av‡m e¯‘wUi gnvKlx©q kw³i GKUv Ask| Gfv‡e wb‡Ri ÿgZv evwo‡q †bq hvb| Z‡e mswkøó Mª‡ni kw³ ÿq nq Lye bMY¨ cwigvY|
5. A\_v©r, bÿÎwU hLb wdDkb wewµqvi gva¨‡g Av‡jv w`Z|
6. g‡b ivL‡Z n‡e, GB c„ô wKš‘ wbQK MvwYwZK GKUv mxgv| ev¯Íe †Kv‡bv c„ô bq|
7. GK b¨v‡bv‡m‡KÛ n‡jv GK †m‡K‡Ûi GKk †KvwU fv‡Mi GK fvM|
8. GK gvB‡µv‡m‡KÛ n‡jv GK †m‡K‡Ûi 10 jÿ fv‡Mi GK fvM|