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# Calculation and comparison of certain physical properties of sample irregular galaxies with the Milky Way galaxy

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## Calculation and comparison of certain physical properties of sample irregular galaxies with the Milky Way galaxy

#### Abstract

Irregular galaxies often include a mix of old and young celestial populations, as well as dust and gas. This study makes an early effort at the morphological classification of irregular galaxies. These sources have been chosen from (70) irregular galaxies data samples from a Catalogue survey. We present a statistical analysis of the physical properties for the chosen data from the database and a collection of tools that used to study the physics of galaxies and cosmology HYPERLEDA (http://atlas.obshp.fr/hyperleda/) and NASA /IPAC Extragalactic Database NED (https://ned.ipac.caltech.edu/) survey.

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#### 1. Introduction

Galaxies are the fundamental building elements of the universe. Few of these galaxies were just structurally simple, usually contain only standard stars as well as exhibiting no specific physical characteristics, the others are complicated structures, constructed from several different interacts on stars, neutral and ionized gas components [1]. Galaxies may typically range from dwarf galaxies with tens of millions of stars to massive galaxies with trillions of stars. Aside from their varied sizes, galaxies have a variety of shapes [2].

A previous study by Mirjana P [3]. Illustrated that there is still a reasonable understanding of many characteristics of different types of galaxies, especially when moving to high redshifts. Mostly, galaxies that are understood emerge from the light that is detected. This variable (light) includes a large number of details from the source produced via it, like (mass, distance, age, and type, etc.) following Rashed et al. [4] that studied the flux density of active galaxies bright at different spectral bands.

A few irregular galaxies have fairly predictable rotation curves because others show impossible-to-spin objects. Some authors [5] studied the results of a simple derivation, which is similar to the more exact value obtained via stellar structure equations for the degenerate matter.

Because stars do not revolve at the same rate around the galactic center, this study will investigate the gravitational force that results when recognizing where mass has transported. This work might reveal how the positions and speeds of stars and galaxies change throughout time [6].

The morphological categorization of galaxies is an intriguing issue for investigating the fundamentals of galaxy assembly. Early-type galaxies (ETGs) include elliptical and lenticular galaxies, and late-type galaxies, which contain spiral and irregular galaxies, are the two major kinds. The primary types of galaxies in the observable universe are those distinct sorts [7].

The types of morphological galaxies might lead to significant studies of astrophysical factors. Every model of galaxy structure and evolution had to include the spectrum of forms observed [8].

According to a published article, a previous study [9] measures the magnitude of pressure support; provided by the HI velocity dispersion in the SHIELD galaxies. They discovered that this aspect can be

significant for low-mass systems. So they adjust the enclosed dynamical mass to account for the HI velocity dispersion contribution [10], the most interesting findings of this research are that the surface density of baryonic mass in galaxies' outer disks can be lower than the dynamical mass surface density, implying that there isn't sufficient baryonic mass (in the form of stars and HI gas). They found that this may mean one of two things: (i) the luminosity stellar mass in the outer disks is low due provides HI disks upright, (ii) dark matter is correlated with the disk.

This paper focuses on sections; are arranged as follows: section one outlines the mathematical analyses associated, with our project, determining the structure used in the statistical analysis with the parameter inferences that have been calculated in this paper. Section three: showing determined results, likewise, measurable investigation of the used sample data. In extension, the relationship between the obtained parameters will discuss in this section. As well as we will be investigating these correlations.

#### 1.1. The sample, data, and derived parameters

This paper was presented a scientific analysis of (70) samples of irregular galaxies and these samples have taken from HYPERLEDA (http://atlas.obs-hp.fr/hyperleda/) and NED (https://ned.ipac.Caltech.edu/) surveys as shown in Table 1 column 4. Late-type irregular galaxies picked from the analysis and augmented by galaxies, including their earlier Hubble classification with absolute magnitudes of less than  $M_B = -17$  <sup>mag</sup>. Also, we picked out galaxies with HI flux densities greater than 200 mJy and Galactic latitudes  $[b] > 10^{10}$ . This result is about (70) samples of irregular galaxies, as shown in Tables 1 and 2.

#### 1.2. Data used

A lot of galaxies are investigated lengthy to expand the radius of the first grate band. It includes the recorded data in a single 12-h synthesis analysis, and measurement was recording using a velocity distribution taper and a stream width of 2 or 4 km s<sup>-1</sup> [11].

It's worth noting that determining the mass may need knowledge of the star's or gases' spectral rotation velocity. The calculations of this selected data will assist in the current study to explain the proportion

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Table 1 The sample and parameters of irregular galaxies.

$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Name (1)	Other Name (2)	Morpholog-ical type (3)	log d <sub>25</sub> (arcmin) (4)	d <sub>25</sub> (arcmin) (5)	V <sub>H</sub> (km/s) (6)	D (Mpc) (7)	Ao (Kpc) (8)	$\begin{array}{c} M_{I} \ (M_{\Theta}) \\ (9) \end{array}$
$\begin{array}{c} UCG \ 3200 \ DD0 \ 161 \ B \ 183 \ 6.76083 \ 743 \ 10.6143 \ 15.060788 \ 7.51E-09 \ UCC \ 5414 \ NGC \ 3104 \ IAB \ 1.48 \ 3.019952 \ 604 \ 8.623571 \ 5.46765 \ 3.53E+09 \ UGC \ 5429 \ PGC \ 31923 \ Im \ 1.65 \ 4.466836 \ 629 \ 8.985714 \ 8.423701 \ 1.04E+10 \ UGC \ 5429 \ PGC \ 31923 \ Im \ 1.65 \ 4.466836 \ 629 \ 8.985714 \ 8.423701 \ 1.04E+10 \ UGC \ 5223 \ NGC \ 4190 \ IB \ 1.18 \ 1.515561 \ 158 \ 2.257143 \ 3.706788 \ 2.275148 \ 2.775149 \ 2.75149 \ $	UGC 5272	UGC 0947	IB	1.21	1.62181	520	7.428571	2.528458	70.352.827
UGC 4305         Holmberg II         Im         1.9         7.943322         158         2.257143         3.762785         8.24E-08           UGC 5414         NGC 3104         IAB         0.93         0.954993         1085         1.5         5.468765         3.53E+09           UGC 6292         NGC 4190         IB         1.18         0.515         2.55714         8.16577         5.4E+109           UGC 7232         NGC 4214         Im         1.53         6.76033         2.22         4.171429         5.91821         2.31E+09           UGC 7040         PGC 05809         Im         1.16         1.44544         428         6.114286         1.84547         5.86E+08           UGC 7448         NGC 4485         IB         1.3         1.995522         483         6.9         2.548174         3.489796         2.68E+109           UGC 7448         NGC 4485         IB         1.21         1.64514         42871         4.10429         1.24H84         1.82E+09           UGC 70403         NGC 5608         IB         1.22         1.66987         5.37938         1.91E+09           UGC 21048         NGC 7222         IBm         1.26         1.819701         986         4.0857         5.37938 </td <td>UGCA 320</td> <td>DDO 161</td> <td>IB</td> <td>1.83</td> <td>6.76083</td> <td>743</td> <td>10.6143</td> <td>15.06058</td> <td>7.51E+09</td>	UGCA 320	DDO 161	IB	1.83	6.76083	743	10.6143	15.06058	7.51E+09
UGC 5414         NGC 3104         LAB         1.48         3.01952         604         8.62871         5.468765         3.33E+09           UGC 5829         PGC 31923         In         1.65         4.466336         629         8.98714         8.423701         1.04E+10           UGC 7232         NGC 4190         IB         1.18         1.513561         158         2.27143         0.716984         2.97E+08           UGC 700         PGC 45800         Im         1.14         1.380484         531         7.585714         3.48779         5.86E+09           UGC 7444         PGC000133         IB         2.02         1.047129         111         1.585714         3.484779         5.86E+09           UGC 6403         DD0 166         IAB         1.16         1.44544         945         1.35         3.313802         1.22E+10           UGC 6403         NGC 5668         IB         1.22         1.65987         666         9.514286         3.313802         1.26E+11           UGC 9404         NGC 5363         ID         1.62         4.168694         1134         1.62         4.14771         9.88E+09           UGC 1487         NGC 5363         ID         1.62         4.168694         1134	UGC 4305	Holmberg II	Im	1.9	7.943282	158	2.257143	3.762785	8.24E+08
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 5414	NGC 3104	IAB	1.48	3.019952	604	8.628571	5.468765	3.53E+09
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 5829	PGC 31923	Im	1.65	4.466836	629	8.985714	8.423701	1.04E+10
UGC 7232         NGC 4190         IB         1.18         1.51361         158         2.257143         0.716984         2.97E+08           UGC 7278         NGC 4214         Im         1.83         6.76083         292         4.171429         5.918821         2.51E+09           UGC 9992         PGC 55809         Im         1.16         1.44544         428         6.114256         1.845776         2.68E+08           UGC 7648         NGC 4455         IB         1.3         1.995262         483         6.9         2.889345         4.32E+09           UGC 7648         NGC 4455         IB         1.22         1.695987         666         9.512456         4.30525         1.82E+09           UGC 96403         NGC 3566         ID         1.16         1.44544         42871         4.10429         1.241871         1.21E+11           NGC 3952         IC 2972         IBm         1.21         1.62181         1577         2.252857         7.668034         9.88E+09           UGC 12485         NGC 722         IBm         1.24         1.737801         1750         2.5         9.17806         1.54E+09           UGC 2455         NGC 1260         IB         1.44         4.365158         100	UGC 6923	PGC 37553	IAB	0.98	0.954993	1085	15.5	3.106577	5.4E+09
UGC 7278         NGC 4214         Im         1.83         6.76083         292         4.171429         5.918821         2.518-09           UGC 7690         PGC 55809         Im         1.16         1.34084         431         7.585714         2.19751         2.358-109           UGC 7444         PGC000143         IB         2.02         10.47129         111         1.585714         3.484779         5.468-108           UGC 7484         PGC00143         IB         1.16         1.44544         943         1.3.5         4.095285         1.822H-09           UGC 8219         PGC 5560         ID         1.16         1.44544         943         1.3.5         4.095285         1.822H-09           UGC 8403         NGC 5636         ID         1.16         1.44544         2871         4.10429         2.41187         1.218+11           UGC 12847         NGC 5363         ID         1.62         4.168944         1134         1.62         4.17332         4.338+1-09           UGC 12855         NGC 7800         IB         1.24         1.737801         1750         2.5         9.117806         1.548+49           UGC 2451         NGC 7800         IB         1.24         1.577801         150	UGC 7232	NGC 4190	IB	1.18	1.513561	158	2.257143	0.716984	2.97E+08
$\begin{array}{llllllllllllllllllllllllllllllllllll$	UGC 7278	NGC 4214	Im	1.83	6.76083	292	4.171429	5.918821	2.51E+09
UGC 9992         PCC 55809         Im         1.16         1.445x4         428         6.1128x0         1.85716         2.68E+08           UGC 7648         NGC 4485         IB         1.3         1.995262         483         6.9         2.88244         3.22E+09           UGC 8030         DDO 166         IAB         1.16         1.44544         945         13.5         4.095285         1.82E+09           UGC 0403         NGC 5365         IO         1.16         1.44544         2871         4.101249         12.44187         1.21E+11           UGC 0403         NGC 5363         IO         1.62         4.168694         1134         1.6.2         1.417312         4.35E+11           UGC 12845         NGC 7392         IBm         1.26         1.819701         986         1.4087         5.379338         1.91E+09           UGC 12845         NGC 7800         IB         1.24         1.737801         1750         5.44E+08           UGC 2845         DD 09         IB         2.29         1.06787         7.309,079         7.499,079           UGC 3856         NGC 7820         IB         1.39         3.9481         95         1.357143         1.087373         47.256,941	UGC 7690	PGC41576	Im	1.14	1.380384	531	7.585714	2.197591	2.35E+09
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 9992	PGC 55809	Im	1.16	1.44544	428	6.114286	1.854796	2.68E+08
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGCA444	PGC000143	IB	2.02	10.47129	111	1.585714	3.484779	5.86E+08
$\begin{array}{llllllllllllllllllllllllllllllllllll$	UGC 7648	NGC 4485	IB	1.3	1.995262	483	6.9	2.889345	4.32E+09
UGC 219         NGC 5608         IB         1.22         1.659587         666         9.514286         3.313802         1.76E+08           UGC 06403         NGC 3655         I0         1.16         1.44544         2871         41.01429         12.44187         1.21E+11           NGC 3952         IC 2972         IBm         1.21         1.62181         1577         2.52887         7.668034         9.88E+09           UGC 1248         NGC 7522         IBm         1.24         1.737801         1750         25         9.117806         1.54E+09           UGC 12885         NGC 7800         IB         1.24         1.737801         1750         25         9.117806         1.54E+09           UGC 3851         NGC 2366         IB         1.24         1.737801         1750         25         9.11787         7.7409.079           UGC 3056         NGC 1569         IB         1.64         4.365158         100         1.42871         1.308737         47.526.941           UGC 4359         DD0 53         Im         0.9         0.794328         24         0.342857         0.057156         12.373.2           UGC 455         NGC 1566         IB         1.47         2.951209         33	UGC 8303	DDO 166	IAB	1.16	1.44544	945	13.5	4.095285	1.82E+09
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 9219	NGC 5608	IB	1.22	1.659587	666	9.514286	3.313802	1.76E + 08
NGC 3952         IC 2972         IBm         1.21         1.62181         1577         22.52857         7.668034         9.88E-09           UGC 8487         NGC 5363         10         1.62         4.168664         1134         16.2         14.17312         4.35E+11           UGC 12885         NGC 7800         IB         1.24         1.737801         1750         25         9.117806         1.54E+09           UGC 12885         NGC 2366         IB         1.24         1.737801         1750         25         9.117806         1.54E+09           UGC 3851         NGC 2366         IB         1.64         4.365158         100         1.428571         1.308737         47.526.941           UGC 3455         NGC 1569         IB         1.64         4.365158         100         1.428571         1.308737         47.352.6941           UGC 4459         DDO 53         Im         0.9         0.794328         24         0.342857         0.057156         123732.9           UGC 4459         DDO 53         Im         0.9         0.794328         24         0.342857         0.30139         1.73E+08           UGC 4550         IB         1.26         18.19701         232         3.310286	UGC 06403	NGC 3656	IO	1.16	1.44544	2871	41.01429	12.44187	1.21E+11
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	NGC 3952	IC 2972	IBm	1.21	1.62181	1577	22.52857	7.668034	9.88E+09
UGC 12048         NGC 7292         IBm         1.26         1.819701         986         14.0857         5.379338         1.91E+09           UGC 12885         NGC 7800         IB         1.24         1.737801         1750         25         9.117806         1.54E+09           UGC 12885         NGC 260851         IBm         1.32         2.089296         306         4.371429         1.916787         7.409.079           NGC 6822         DD 209         IB         2.19         1.54817         56         0.8         2.600401         5.44E+08           UGC 3050         NGC 1569         IB         1.59         3.890451         95         1.357143         1.108092         42,143.874           UGC 4459         DDO 53         Im         0.9         0.794328         24         0.342857         0.057156         123732.9           UGC 4459         DDO 6         IB         1.47         2.951209         373         5.328571         3.300359         1.73E+08           UGC 2455         NGC 1156         IB         1.47         2.951209         373         5.328571         3.30359         1.427,190           DCC 45717         FESO 269-58         IO         1.52         3.311311         0.4005 </td <td>UGC 8847</td> <td>NGC 5363</td> <td>IO</td> <td>1.62</td> <td>4.168694</td> <td>1134</td> <td>16.2</td> <td>14.17312</td> <td>4.35E+11</td>	UGC 8847	NGC 5363	IO	1.62	4.168694	1134	16.2	14.17312	4.35E+11
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC12048	NGC 7292	IBm	1.26	1.819701	986	14.0857	5.379338	1.91E+09
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 12885	NGC 7800	IB	1.24	1.737801	1750	25	9.117806	1.54E+09
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	IC 4662	PGC 60851	IBm	1.32	2.089296	306	4 371429	1.916787	77,409,079
UGC 3851         NGC 2366         IB         1.64         4.365158         100         1.428571         1.308737         47,526,941           UGC 3056         NGC 1569         IB         1.59         3.890451         95         1.357143         1.108092         42,143,874           UGC 4455         DDO 53         Im         0.9         0.794328         24         0.342857         0.057156         123732.9           AGC 668         DDO 8         IB         2.26         18,19701         232         3.314286         12.65728         2.23E+08           UGC 2455         NGC 0166         IAm         1.28         1.905461         210         3         1.199697         21.477,190           UGC 7074         NGC 4068         IAm         1.28         1.905461         210         3         5.37228         83,725,498           UGC 045171         ESO 269-58         IO         1.37         2.344229         361         5.157143         2.537228         83,725,498           UGC 0468         ACC 044241         Im         1.66         4.570882         71         1.014286         0.972995         84,12,026           NGC 427A         PGC 13500         IB         1.36         2.311311         394<	NGC 6822	DD 209	IB	2.19	15.48817	56	0.8	2.600401	5.44E+08
UGC 3056         NGC 1569         IB         1.59         3.890451         95         1.357143         1.108092         42,143,874           UGC 4459         DDO 53         Im         0.9         0.794328         24         0.342857         0.057156         123732.9           AGC 668         DDO 8         IB         2.26         18.19701         232         3.314286         12.65728         2.23E+08           UGC 2455         NGC 1156         IB         1.47         2.951209         373         5.328571         3.00359         1.73E+08           UGC 7074         NGC 4068         IAm         1.28         1.905461         210         3         1.199697         21,427,190           PGC 45717         ESO 269-58         10         1.52         3.311311         400         5.714286         3.971114         89,323.073           NGC 5237         PCC 48139         10         1.37         2.344229         361         5.157143         2.57228         83,725,498           UGC 00648         AGC 00668         IB         2.26         18.19701         232         3.314286         12.65728         2.23E+08           UGC 00643         ESO 245-G005         IBm         1.52         3.311311	UGC 3851	NGC 2366	IB	1.64	4.365158	100	1.428571	1.308737	47.526.941
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 3056	NGC 1569	IB	1.59	3.890451	95	1.357143	1.108092	42,143,874
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	UGC 4459	DDO 53	Im	0.9	0 794328	24	0 342857	0.057156	123732.9
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	AGC 668	DDO 8	IB	2.26	18 19701	232	3 314286	12.65728	2.23E+08
Core 2025         Info         Info<         Info<         Info         Info         Info	LIGC 2455	NGC 1156	IB	1 47	2 951209	373	5 328571	3 300359	1.73E+0.8
Bock 1031         Inc.	UGC 7074	NGC 4068	IAm	1.17	1 905461	210	3	1 199697	21 427 190
NGC 5237       PGC 48139       ID       1.37       2.344229       361       5.157143       2.537228       83,725,498         UGCA 86       PGC 14241       Im       1.66       4.570882       71       1.014286       0.972995       88,412,026         NGC 5237       PGC 48139       IB       1.36       2.290868       2026       28,94286       13.91527       6.87E+08         UGC 00668       AGC 00668       IB       2.26       18.19701       232       3.314266       12.65728       2.23E+08         PGC 006430       ESO 245-G005       IBm       1.52       3.311311       394       5.628571       3.911547       4.94E+08         UGC 04305       PGC 023324       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 5115       PGC 027602       Irr       0.82       0.660693       771       11.01429       1.527238       2.29E+08         UGC 5408       PGC 065073       IB       1.45       2.818383       506       7.228571       4.275657       1.01E+08         IC 4870       PGC 067946       Im       1.52       3.311311       461       6.588714       4.576708       8.57E+08         UGC 11891<	PGC 45717	ESO 269-58	IO	1.20	3 311311	400	5 714286	3 971114	89 323 073
INGC 0520	NGC 5237	PGC 48139	10	1.32	2 344229	361	5 157143	2 537228	83 725 498
Cord 100         Cord 127A         PGC 13500         IB         1.36         1.200         1.1205         0.3712/36	LIGCA 86	PGC 14241	Im	1.66	4 570882	71	1 014286	0.972995	88 412 026
NGC 19274       NGC 19250       135       135       135       125       136       135       131       146       155       131       146       135       131       141       125       131       141       125       131       141       125       131       141       145       135       131       141       135       131       131       131       131 <th131< th=""></th131<>	NGC 1427A	PGC 13500	IB	1.36	2 290868	2026	28 94286	13 91527	$6.87E \pm 0.8$
DGC 006430       ESO 245-G005       IBm       1.52       3.311311       394       5.628571       3.911547       4.94E+08         UGC 04305       PGC 0023324       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 04305       PGC 0023324       Im       1.09       1.230269       558       7.971429       2.058195       2.29E+08         UGC 3711       NGC 2337       IB       1.34       2.187762       436       6.228571       2.859821       5.29E+08         UGC 5151       PGC 050073       IB       1.45       2.818383       506       7.228571       4.275657       1.01E+08         IC 4870       PGC 065073       IB       1.45       2.818383       506       7.228571       4.36367       1.34E+08         IC 5152       PGC 067908       IAB       1.71       5.128614       124       1.771429       1.906663       1.13E+08         UGC 192       IC 10       IB       1.83       6.76083       345       4.928571       6.993127       4.78E+08         UGC 1920       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         UGC 1200 <th< td=""><td>UGC 00668</td><td>AGC 00668</td><td>IB</td><td>2.26</td><td>18 19701</td><td>232</td><td>3 314286</td><td>12 65728</td><td>2.23E+0.8</td></th<>	UGC 00668	AGC 00668	IB	2.26	18 19701	232	3 314286	12 65728	2.23E+0.8
Loc 000100Loc 01000Loc 01000Loc 01000Loc 01000Loc 01000Loc 01000UGC 04305PGC 023324Im1.97.9432821582.2571433.76278582.417.203UGC 04305NGC 4080Im1.091.2302695587.9714292.0581952.29E+08UGC 5151PGC 027602Irr0.820.66069377111.014291.5272382.45E+08NGC 5408PGC 05073IB1.452.8183835067.2285714.2756571.01E+08IC 4870PGC 063432IBm1.221.65958787712.528574.363671.34E+08IC 5152PGC 067908IAB1.715.1286141241.7714291.9066631.13E+08UGC 11891PGC 067946Im1.523.3113114616.5857144.5767088.57E+08UGC 1202IC 10IB1.836.760833454.9285716.9931274.78E+08UGC 1200PGC006309IB1.131.34896381211.63.2840392.81E+08NGC 1427APGC013500IB1.362.290868202628.9428613.915276.87E+08NGC 1427APGC 016744IBm1.191.5481780411.485713.734332.6E+08NGC 2915PGC 026761IO1.261.8197014656.6428572.5369113.51E+08UGC 1800PGC 016744IBm1.191.5481780411.485713.73433 <td>PGC 006430</td> <td>ESO 245-G005</td> <td>IBm</td> <td>1.52</td> <td>3 311311</td> <td>394</td> <td>5 628571</td> <td>3 911547</td> <td>4.94E+0.8</td>	PGC 006430	ESO 245-G005	IBm	1.52	3 311311	394	5 628571	3 911547	4.94E+0.8
CGC 0405       FIGC 04080       Im       1.0	LIGC 04305	PGC 023324	Im	1.92	7 943282	158	2 257143	3 762785	82 417 203
CGC 1000       INC       1.05       1.05072       436       1.050711       1.050712       2.050713       1.01E+08       1.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712       2.050712	UGC 7068	NGC 4080	Im	1.09	1 230269	558	7 971429	2 058195	$2.29E \pm 08$
UGC 5111       HOC 2507       Hr       0.82       0.660693       771       11.01429       1.527238       2.45E+08         UGC 5151       PGC 027602       Hr       0.82       0.660693       771       11.01429       1.527238       2.45E+08         NGC 5408       PGC 050073       IB       1.45       2.818383       506       7.228571       4.275657       1.01E+08         IC 4870       PGC 067908       IAB       1.71       5.128614       124       1.771429       1.906663       1.13E+08         UGC 11891       PGC 067946       Im       1.52       3.311311       461       6.585714       4.576708       8.57E+08         UGC 192       IC 10       IB       1.83       6.76083       345       4.928571       6.993127       4.78E+08         UGC 1200       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         NGC 1427A       PGC 016744       IBm       1.31       2.041738       1501       21.44286       9.188254       1.71E+09         NGC 1800       PGC 016744       IBm       1.19       1.548817       804       11.48571       3.733433       2.6E+08         NGC 2915       PGC	UGC 3711	NGC 2337	IB	1.34	2 187762	436	6 228571	2.859821	5.29E + 0.08
GGC 9151       FIGC 051052       FIT       FIGT 1101142       FIST1250       2.4512400         NGC 5408       PGC 050073       IB       1.45       2.818383       506       7.228571       4.275657       1.01E+08         IC 4870       PGC 063432       IBm       1.22       1.659587       877       12.52857       4.36367       1.34E+08         UGC 11891       PGC 067946       Im       1.52       3.311311       461       6.585714       4.576708       8.57E+08         UGC 192       IC 10       IB       1.83       6.76083       345       4.928571       6.993127       4.78E+08         UGC 4305       DD0 50       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 1200       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         NGC 1427A       PGC013500       IB       1.36       2.290868       2026       28.94286       13.91527       6.87E+08         NGC 1800       PGC 026761       I0       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 2023       DQC 205701       I0       1.81 <td< td=""><td>UGC 5151</td><td>PGC 027602</td><td>ID</td><td>0.82</td><td>0.660693</td><td>771</td><td>11 01429</td><td>1 527238</td><td>2.45E+0.8</td></td<>	UGC 5151	PGC 027602	ID	0.82	0.660693	771	11 01429	1 527238	2.45E+0.8
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	NGC 5408	PGC 050073	IB	1.45	2 818383	506	7 228571	4 275657	1.01E+0.8
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	IC 4870	PGC 063432	IBm	1.22	1.659587	877	12.52857	4 36367	1.34E+0.8
UGC 11891       PGC 067946       Im       1.52       3.311311       461       6.585714       4.576708       8.57E+08         UGC 192       IC 10       IB       1.83       6.76083       345       4.928571       6.993127       4.78E+08         UGC 192       IC 10       IB       1.83       6.76083       345       4.928571       6.993127       4.78E+08         UGC 4305       DDO 50       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 1200       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         NGC 140       PGC 01966       IBm       1.31       2.041738       1501       21.44286       9.188254       1.71E+09         NGC 1427A       PGC013500       IB       1.36       2.290868       2026       28.94286       13.91527       6.87E+08         NGC 2915       PGC 026761       IO       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 8009       NGC 4753       IO       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25	IC 5152	PGC 067908	IAB	1.22	5 128614	124	1 771429	1.906663	1.312+0.8
UGC 192       IC 10       IB       1.82       6.376811       1.01       6.05111       1.0100       6.051111       6.05111       6.0	UGC 11891	PGC 067946	Im	1.52	3 311311	461	6 585714	4 576708	857E+08
UGC 4305       DD 0 50       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 4305       DD 0 50       Im       1.9       7.943282       158       2.257143       3.762785       82,417,203         UGC 1200       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         NGC 1140       PGC 10966       IBm       1.31       2.041738       1501       21.44286       9.188254       1.71E+09         NGC 1427A       PGC013500       IB       1.36       2.290868       2026       28.94286       13.91527       6.87E+08         NGC 1800       PGC 016744       IBm       1.19       1.548817       804       11.48571       3.733433       2.6E+08         NGC 2915       PGC 026761       I0       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 8009       NGC 4753       I0       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25       Im       1.41       2.570396       603       8.614286       4.646967       4.42E+08         UGC 5637       NGC32	UGC 192	IC 10	IB	1.83	6 76083	345	4 928571	6 993127	4.78E+08
UGC 1000       PGC006309       IB       1.13       1.348963       812       11.6       3.284039       2.81E+08         NGC 1200       PGC006309       IB       1.31       1.348963       812       11.6       3.284039       2.81E+08         NGC 1140       PGC 10966       IBm       1.31       2.041738       1501       21.44286       9.188254       1.71E+09         NGC 1427A       PGC013500       IB       1.36       2.290868       2026       28.94286       13.91527       6.87E+08         NGC 1800       PGC 016744       IBm       1.19       1.548817       804       11.48571       3.733433       2.6E+08         NGC 2915       PGC 026761       I0       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 07000       PGC037914       IB       0.94       0.870964       1487       21.24286       3.882963       3.04E+08         UGC 8009       NGC 4753       I0       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25       Im       1.41       2.570396       603       8.614286       4.646967       4.42E+08         UGC 5637       NGC32	UGC 4305	DDO 50	Im	19	7 943282	158	2 257143	3 762785	82 417 203
NGC 1140         PGC 10966         IBm         1.31         2.041738         1501         21.44286         9.188254         1.71E+09           NGC 1427A         PGC013500         IB         1.36         2.290868         2026         28.94286         13.91527         6.87E+08           NGC 1427A         PGC016744         IBm         1.19         1.548817         804         11.48571         3.733433         2.6E+08           NGC 2915         PGC 026761         IO         1.26         1.819701         465         6.642857         2.536911         3.51E+08           UGC 07000         PGC037914         IB         0.94         0.870964         1487         21.24286         3.882963         3.04E+08           UGC 8009         NGC 4753         IO         1.81         6.456542         1243         17.75714         24.06154         4.47E+10           UGC 2023         DDO 25         Im         1.41         2.570396         603         8.614286         4.646967         4.42E+08           UGC 5637         NGC3239         IB         1.56         3.630781         752         10.74286         8.18597         1.83E+09           UGC 6670         PGC 1556477         IB         1.18         1.513561 <td>UGC 1200</td> <td>PGC006309</td> <td>IB</td> <td>1.13</td> <td>1.348963</td> <td>812</td> <td>11.6</td> <td>3.284039</td> <td>2.81E+08</td>	UGC 1200	PGC006309	IB	1.13	1.348963	812	11.6	3.284039	2.81E+08
NGC 147A       PGC 01500       IB       1.36       2.290868       2026       28.94286       13.91527       6.87E+08         NGC 1800       PGC 016744       IB       1.19       1.548817       804       11.48571       3.733433       2.6E+08         NGC 2915       PGC 026761       I0       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 07000       PGC037914       IB       0.94       0.870964       1487       21.24286       3.882963       3.04E+08         UGC 8009       NGC 4753       I0       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25       Im       1.41       2.570396       603       8.614286       4.646967       4.42E+08         UGC 5637       NGC3239       IB       1.56       3.630781       752       10.74286       8.18597       1.83E+09         UGC 6670       PGC 1556477       IB       1.18       1.513561       925       13.21429       4.197532       9.66E+08         UGC 8303       DDD0166       IAB       1.16       1.44544       945       13.5       4.095285       1.82E+08	NGC 1140	PGC 10966	IBm	1 31	2 041738	1501	21 44286	9 188254	1.71E+0.9
NGC 1800         PGC 016744         IBm         1.19         1.548817         804         11.48571         3.733433         2.6E+08           NGC 2915         PGC 026761         I0         1.26         1.819701         465         6.642857         2.536911         3.51E+08           UGC 07000         PGC037914         IB         0.94         0.870964         1487         21.24286         3.882963         3.04E+08           UGC 8009         NGC 4753         I0         1.81         6.456542         1243         17.75714         24.06154         4.47E+10           UGC 2023         DDO 25         Im         1.41         2.570396         603         8.614286         4.646967         4.42E+08           UGC 5637         NGC3239         IB         1.56         3.630781         752         10.74286         8.18597         1.83E+09           UGC 6670         PGC 1556477         IB         1.18         1.513561         925         13.21429         4.197532         9.66E+08           UGC 8303         DDD0166         IAB         1.16         1.44544         945         13.5         4.095285         1.82E+08	NGC 1427A	PGC013500	IB	1.36	2.290868	2026	28.94286	13 91527	6.87E+08
NGC 2915       PGC 026761       I0       1.26       1.819701       465       6.642857       2.536911       3.51E+08         UGC 07000       PGC037914       IB       0.94       0.870964       1487       21.24286       3.882963       3.04E+08         UGC 8009       NGC 4753       I0       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25       Im       1.41       2.570396       603       8.614286       4.646967       4.42E+08         UGC 5637       NGC3239       IB       1.56       3.630781       752       10.74286       8.18597       1.83E+09         UGC 6670       PGC 1556477       IB       1.18       1.513561       925       13.21429       4.197532       9.66E+08         UGC 8303       DDD0166       IAB       1.16       1.44544       945       13.5       4.095285       1.82E+08	NGC 1800	PGC 016744	IBm	1.19	1.548817	804	11 48571	3 733433	$2.6E \pm 0.8$
UGC 07000       PGC037914       IB       0.94       0.870964       1487       21.24286       3.882963       3.04E+08         UGC 07000       PGC037914       IB       0.94       0.870964       1487       21.24286       3.882963       3.04E+08         UGC 8009       NGC 4753       IO       1.81       6.456542       1243       17.75714       24.06154       4.47E+10         UGC 2023       DDO 25       Im       1.41       2.570396       603       8.614286       4.646967       4.42E+08         UGC 5637       NGC3239       IB       1.56       3.630781       752       10.74286       8.18597       1.83E+09         UGC 6670       PGC 1556477       IB       1.18       1.513561       925       13.21429       4.197532       9.66E+08         UGC 8303       DDD0166       IAB       1.16       1.44544       945       13.5       4.095285       1.82E+08	NGC 2915	PGC 026761	IO	1.26	1.819701	465	6 642857	2,536911	3.51E+08
UGC 8009         NGC 4753         IO         1.81         6.456542         1243         17.75714         24.06154         4.47E+10           UGC 2023         DDO 25         Im         1.41         2.570396         603         8.614286         4.646967         4.42E+08           UGC 5637         NGC3239         IB         1.56         3.630781         752         10.74286         8.18597         1.83E+09           UGC 6670         PGC 1556477         IB         1.18         1.513561         925         13.21429         4.197532         9.66E+08           UGC 8303         DDO166         IAB         1.16         1.44544         945         13.5         4.095285         1.82E+08	UGC 07000	PGC037914	IB	0.94	0.870964	1487	21.24286	3.882963	3.04E+08
UGC 2023         DDO 25         Im         1.41         2.570396         603         8.614286         4.646967         4.42E+10           UGC 2023         DDO 25         Im         1.41         2.570396         603         8.614286         4.646967         4.42E+10           UGC 5637         NGC3239         IB         1.56         3.630781         752         10.74286         8.18597         1.83E+09           UGC 6670         PGC 1556477         IB         1.18         1.513561         925         13.21429         4.197532         9.66E+08           UGC 8303         DDO166         IAB         1.16         1.44544         945         13.5         4.095285         1.82E+08	UGC 8009	NGC 4753	10	1.81	6 4 5 6 5 4 2	1243	17 75714	24 06154	4.47E + 10
UGC 5637         NGC3239         IB         1.56         3.630781         752         10.74286         8.18597         1.83E+09           UGC 6670         PGC 1556477         IB         1.18         1.513561         925         13.21429         4.197532         9.66E+08           UGC 8303         DDD166         IAB         1.16         1.44544         945         13.5         4.095285 $1.82E+0.8$	UGC 2023	DDO 25	Im	1.01	2 570396	603	8 614286	4 646967	4.42E + 08
UGC 6670       PGC 1556477       IB       1.18       1.513561       925       13.21429       4.197532       9.66E+08         UGC 8303       DD0166       IAB       1.16       1.44544       945       13.5       4.095285       1.82E+08	UGC 5637	NGC3230	IR	1.56	3 630781	752	10 74286	8 18507	1.83F±00
UGC 8303 DDO166 IAB 116 1 44544 945 13.5 4 095285 1 $82F\pm08$	UGC 6670	PGC 1556477	IB	1.50	1 513561	925	13 21420	4 197532	9.66E+08
	UGC 8303	DD0166	IAB	1.16	1 44544	945	13.5	4.095285	1.82E+08

(continued on next page)

#### Table 1 (continued)

Name (1)	Other Name (2)	Morpholog-ical type (3)	log d <sub>25</sub> (arcmin) (4)	d <sub>25</sub> (arcmin) (5)	V <sub>H</sub> (km/s) (6)	D (Mpc) (7)	Ao (Kpc) (8)	$\begin{array}{l} M_{I} \ (M_{\Theta}) \\ (9) \end{array}$
UGC 1547	DDO 17	IBm	1.3	1.995262	2643	37.75714	15.81064	2.03E+10
UGC 75	PGC 000647	IB	1.18	1.513561	865	12.35714	3.92526	1.75E+08
UGC03647	DDO 40	Ibm	1.03	1.071519	1386	19.8	4.452619	69,275,986
UGC03860	DDO 43	IB	1.13	1.348963	344	4.914286	1.391268	9,392,756
UGCA205	DDO 75	IB	1.72	5.248075	324	4.628571	5.097971	1.23E+08
UGC 5373	DDO 70	IB	1.69	4.897788	301	4.3	4.419965	33,163,549
IC 1613	PGC 003844	IB	2.26	18.19701	232	3.314286	12.65728	2.23E+08
AGC 2455	PGC 11329	IB	1.47	2.951209	373	5.328571	3.300359	1.73E+08
NGC 2010	PGC 017793	IB	1.09	1.230269	1193	17.04286	4.400406	2.11E+08
UGC 6565	NGC 3738	Im	1.36	2.290868	224	3.2	1.53851	1.03E+08
UGC 1438	NGC 746	Im	1.26	1.819701	705	10.07143	3.846285	3.17E+08
UGC 5935	PGC 032434	IBm	1.49	3.090295	1694	24.2	15.69516	2.13E+09
UGC 6016	PGC032740	Im	1.26	1.819701	1512	21.6	8.249053	1.25E+09
UGC 6024	NGC 3448	IO	1.47	2.951209	1372	19.6	12.13966	4.41E+09
UGC 5995	NGC 4032	IBm	1.13	1.348963	1270	18.14286	5.136367	6.25E+08
UGC 12060	PGC069019	IB	1.04	1.096478	884	12.62857	2.90606	1.98E+08

Table 2Some physical properties of Irregular Galaxies.

NAME (1)	btc (mag) (2)	V <sub>rot</sub> (Km/s) (3)	f <sub>60</sub> (Jy) (4)	f <sub>100</sub> (Jy) (5)	$L_{\rm fir}$ (L <sub><math>\Theta</math></sub> ) (6)	$L_{opt} (L_{\Theta})$ (7)
UGC 5272	13.2	33.7	0.2168	0.4926	2.3E+07	5E+07
UGCA 320	11.74	45.1	0.3979	0.787	8.1E+07	4E+08
UGC 4305	10.74	29.9	1.147	2.616	1.1E+07	4E+07
UGC 5414	13.44	51.3	0.3692	1.003	5.7E+07	5E+07
UGC 5829	13.56	71.1	0.2388	0.7613	4.4E+07	5E+07
UGC 6923	13.53	84.2	0.3725	0.9043	1.8E + 08	1E+08
UGC 7232	13.65	41.1	0.3658	1.208	4,319,256	3E+06
UGC 7278	9.91	41.6	0.3658	1.208	14752.3	3E+08
UGC 7690	12.89	66.1	0.535	1.209	5.9E+07	6E+07
UGC 9992	14.85	24.3	0.09	0.26	7,249,854	7E+06
UGCA444	10.01	26.2	0.32	1.04	1,848,267	4E+07
UGC 7648	11.91	78.1	2.16	3.83	1.8E + 08	1E+08
UGC 8303	13.27	42.6	0.3796	1.2	1.6E + 08	1E+08
UGC 9219	13.33	46.6	0.1956	0.49	3.5E+07	7E+07
UGC 06403	12.96	199.2	2.333	5.442	7.6E+09	2E+09
NGC 3952	12.27	72.5	1.502	2.077	1.2E+09	1E+09
UGC 8847	10.88	353.9	1.65	5	9.6E+08	2E+09
UGC12048	12.47	38.1	1.167	2.725	4.1E+08	3E+08
UGC 12885	12.42	83.1	1.249	2.552	7.8E+09	1E+09
IC 4662	10.76	40.6	8.138	11.83	1E+08	1E+08
NGC 6822	8.31	92.4	7.9	11.2	7,963,717	5E+07
UGC 3851	10.52	38.5	3.513	4.668	1.1E+07	2E+07
UGC 3056	8.31	39.4	45.41	47.29	1.2E + 08	1E+08
UGC 4459	14.3	9.4	0.278	0.48	55450.3	34,932
AGC 668	9.85	26.8	1.42	3.69	3.2E+07	2E+08
UGC 2455	10.9	46.3	6.16	9.202	2.8E+08	2E+08
UGC 7074	12.57	27	0.2278	0.8336	5,040,015	1E+07

(continued on next page)

Table 2	(continued)
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Constraint         Constraint <thconstraint< th="">         Constraint         Constra</thconstraint<>	NAME (1)	btc (mag)	V <sub>rot</sub> (Km/s)	$f_{60}$ (Jy)	$f_{100}$ (Jy)	$L_{\text{fir}} (L_{\Theta})$	$L_{opt} (L_{\Theta})$
	DCC 45717	12.24	(3)	(+)	(3)	2.5E + 07	(F)
No. $3.27$ $12.77$ $36.7$ $0.30$ $0.33$ $1.50+07$ $3008$ $16413$ NGC 1427A $12.97$ $44.9$ $0.2073$ $0.7782$ $43E+08$ $8E+07$ NGC 1427A $12.97$ $44.9$ $0.2073$ $0.7782$ $43E+08$ $8E+07$ UGC 0066430 $12.68$ $71.8$ $0.2242$ $0.5961$ $1.5E+07$ $4E+07$ UGC 0305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 3711 $12.4$ $86.9$ $1.659$ $3.213$ $1.1E+08$ $8E+07$ UGC 5151 $13.55$ $80.9$ $0.5642$ $1.112$ $1.2E+08$ $2E+07$ UGC 1801 $13.59$ $35.4$ $0.713$ $2.308$ $2.6E+08$ $9E+07$ UGC 1801 $13.63$ $87.4$ $0.966$ $3.899$ $1.1E+08$ $2E+07$ UGC 1802 $13.73$ $52.8$ $2.265$ $1.28$ $68E+07$ $7E+07$ UGC 4305 $10.7$	PGC 45/17	12.24	30.3	0.43	1.0	3.5E+0/	0E+07
UGCA 86         9.1 $0.09$ $1.043$ $4.919$ $5.00.913$ $4E+07$ UGC 00666         9.85         26.8 $1.42$ $3.69$ $3.2E+07$ $2E+08$ PGC 006430         12.68         71.8 $0.2273$ $0.7782$ $4.5E+07$ $4E+07$ UGC 04305         10.74         29.9 $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 0568         13.18 $67.4$ $0.2263$ $1.037$ $4.4E+07$ $5E+07$ UGC 3711         12.4         86.9 $1.559$ $3.213$ $1.1E+06$ $7E+07$ UGC 5151         13.5 $80.9$ $0.5642$ $1.112$ $1.2E+08$ $8E+07$ UGC 1801         13.63 $87.4$ $0.966$ $3.899$ $1.1E+07$ $4E+07$ UGC 1801         13.78 $52.8$ $2.265$ $1.28$ $68E+07$ $7E+07$ UGC 120         13.53 $59.1$ $0.2875$ $0.892$ $8.7E+07$ $8E+07$ UGC 1200         13.53 $59.1$ $0.2875$	NGC 5237	12.79	36.7	0.36	0.55	1.5E+07	3E+07
No.C         12.27         44.5         0.2073         0.762         4.35+03         8E+08           UGC 00668         9.85         26.8         1.42         3.69         3.2E+07         2E+08           PGC 006430         12.68         71.8         0.2242         0.5961         1.5E+07         4E+07           UGC 04305         10.74         29.9         1.147         2.616         1.1E+07         4E+07           UGC 3111         12.4         86.9         1.659         3.213         1.1E+08         7E+07           UGC 3111         13.5         80.9         0.5642         1.112         1.2E+08         8E+07           UGC 3151         13.5         80.9         0.5642         1.112         1.2E+08         8E+07           UGC 3151         13.5         80.9         0.5642         1.112         1.2E+08         8E+07           UGC 3151         13.5         80.9         2.461         6.861         1.661+07         5E+07           UGC 1302         13.53         55.4         0.713         2.38         6.8E+07         7E+07           UGC 1200         13.53         59.1         0.2875         0.8992         8.7E+07         8E+07 <t< td=""><td>UGCA 86</td><td>9.1</td><td>60.9</td><td>1.043</td><td>4.979</td><td>3,108,915</td><td>4E+07</td></t<>	UGCA 86	9.1	60.9	1.043	4.979	3,108,915	4E+07
UGC 00068 $9.85$ $2.68$ $1.42$ $5.99$ $3.2E+07$ $2E+08$ UGC 04305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 7068 $13.18$ $67.4$ $0.2863$ $1.037$ $4.4E+07$ $5E+07$ UGC 3711 $12.4$ $86.9$ $0.5642$ $1.112$ $1.2E+08$ $8E+07$ UGC 5408 $11.4$ $31.1$ $2.825$ $2.958$ $2.1E+08$ $8E+07$ UGC 5408 $11.4$ $31.1$ $2.825$ $2.958$ $2.1E+08$ $8E+07$ UGC 1511 $13.63$ $87.4$ $0.966$ $3.899$ $1.1E+08$ $2E+07$ UGC 1192 $11.78$ $52.8$ $2.265$ $1.28$ $6.8E+07$ $7E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 6300 $12.82$ $53.3$ <td>NGC 142/A</td> <td>12.97</td> <td>44.9</td> <td>0.2073</td> <td>0.7782</td> <td>4.3E+08</td> <td>8E+08</td>	NGC 142/A	12.97	44.9	0.2073	0.7782	4.3E+08	8E+08
PAC. 000430       12.85       11.8       0.242       0.3961 $1.5E+07$ 4E+07         UGC 04305       10.74       29.9       1.147       2.616       1.1E+07       4E+07         UGC 04305       10.37       4.4E+07       5E+07       10637       1.112       1.2E+08       8E+07         UGC 5151       13.5       80.9       0.5642       1.112       1.2E+08       8E+07         VGC 5408       11.4       31.1       2.825       2.958       2.1E+08       8E+07         UGC 11891       13.63       87.4       0.966       3.899       1.1E+07       4E+07         UGC 120       13.75       52.8       2.2651       1.28       6.8E+07       TE+07         UGC 1200       13.53       59.1       0.2875       0.8992       8.7E+07       8E+07         UGC 1401       12.04       87.2       3.358       4.922       2.5E+09       1E+09         NGC 1401       12.04       87.2       3.358       4.922       2.5E+09       1E+09         NGC 140       13.78       56.5       0.3571       0.9529       3.3E+08       2E+08         UGC 07000       13.78       56.5       0.3571       0.9529	UGC 00668	9.85	26.8	1.42	3.69	3.2E+07	2E+08
UGC 04305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 7068 $13.18$ $67.4$ $0.2863$ $1.037$ $4.4E+07$ $5E+07$ UGC 7068 $13.18$ $67.4$ $0.2863$ $1.037$ $4.4E+07$ $5E+07$ UGC 5151 $13.5$ $80.9$ $0.5642$ $1.112$ $1.2E+08$ $8E+07$ UGC 1801 $11.4$ $31.11$ $2.825$ $2.958$ $2.1E+08$ $2E+07$ UGC 11891 $13.63$ $87.4$ $0.966$ $3.899$ $1.1E+07$ $4E+07$ UGC 120 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 1400 $12.33$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 4305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $8E+07$ UGC 4300 $12.82$ $53.3$ $0.7679$ $1.82$ $2E+08$ $8E+08$ NGC 1427A $12.97$ $44.9$	PGC 006430	12.68	/1.8	0.2242	0.5961	1.5E+07	4E+07
UGC 7008       13.18       07.4       0.2803       1.037       4.4E+07       SE+07         UGC 3711       12.4       86.9       1.659       3.213       1.1E+08       7E+07         UGC 3511       13.5       80.9       0.5642       1.112       1.2E+08       8E+07         NGC 5408       11.4       31.1       2.825       2.958       2.1E+08       2E+08         UGC 11891       13.63       87.4       0.966       3.899       1.1E+08       2E+07         UGC 11891       13.63       87.4       0.966       3.899       1.1E+08       2E+07         UGC 1200       13.53       59.1       0.2875       0.8992       8.7E+07       8E+07         UGC 1200       13.53       59.1       0.2875       0.8992       8.7E+07       8E+07         NGC 1401       12.04       87.2       3.358       4.922       2.3E+09       1E+09         NGC 1800       12.82       53.3       0.7679       1.82       2E+08       2E+08         UGC 60700       13.78       56.5       0.3571       0.9529       3.3E+08       2E+09         UGC 6070       12.77       96.9       0.6878       1.609       3.2E+08       2E+08 </td <td>UGC 04305</td> <td>10.74</td> <td>29.9</td> <td>1.14/</td> <td>2.616</td> <td>1.1E+07</td> <td>4E+07</td>	UGC 04305	10.74	29.9	1.14/	2.616	1.1E+07	4E+07
UGC 3/11 $12.4$ $86.9$ $1.639$ $3.213$ $1.18+08$ $1.2+07$ UGC 5151 $13.5$ $80.9$ $0.5642$ $1.112$ $1.28+08$ $8E+07$ NGC 5408 $11.4$ $31.1$ $2.825$ $2.958$ $2.1E+08$ $2E+08$ IC 4870 $13.59$ $35.4$ $0.713$ $2.308$ $2.66+08$ $9E+07$ UGC 11891 $13.63$ $87.4$ $0.966$ $3.899$ $1.1E+08$ $2E+07$ UGC 192 $11.78$ $52.8$ $2.265$ $1.28$ $6.88+07$ $7E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ NGC 147A $12.97$ $44.9$ $0.2073$ $0.7782$ $4.38+08$ $8E+08$ NGC 1800 $12.82$ $53.3$ $0.7679$ $1.82$ $2E+08$ $2E+08$ UGC 2023 $13.54$ $62.3$ $0.3144$ $0.7829$ $3.3E+08$ $2E+08$ UGC 8009 $10.41$ $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 537 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $2E+08$ UGC 537 $11.31$ $95.6$ $0.3766$ $1.2$ $1.66+08$ $1E+08$ UGC 537 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC 537 $11.43$ $16.6$ $0.1$ <	UGC 7068	13.18	6/.4	0.2863	1.037	4.4E + 07	5E+07
UGC 515113.580.9 $0.5642$ $1.112$ $1.2E+108$ $8E+107$ NGC 540811.431.1 $2.825$ $2.958$ $2.1E+08$ $2E+08$ IC 487013.5935.4 $0.713$ $2.308$ $2.6E+08$ $9E+07$ IC 515210.01 $49.2$ $2.461$ $6.861$ $1.6E+07$ $5E+07$ UGC 118113.63 $87.4$ $0.966$ $3.899$ $1.1E+08$ $2E+07$ UGC 1302 $11.78$ $52.8$ $2.265$ $1.28$ $6.8E+07$ $7E+07$ UGC 4305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 1202 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ NGC 140 $12.04$ $87.2$ $3.358$ $4.922$ $2.5E+09$ $1E+09$ NGC 1427A $12.97$ $44.9$ $0.2073$ $0.7782$ $4.3E+08$ $8E+08$ NGC 2915 $11.7$ $75.2$ $0.889$ $1.688$ $6.9E+07$ $1E+08$ UGC 07000 $13.78$ $56.5$ $0.3571$ $0.9529$ $3.3E+08$ $2E+08$ UGC 2023 $13.54$ $62.3$ $0.3144$ $0.7851$ $4.7E+07$ $4E+07$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 5670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 567 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC 567 $12.55$ $0.667$ $1.257$ $0.667$	UGC 3/11	12.4	86.9	1.659	3.213	1.1E+08	/E+0/
NGC 340811.431.12.8252.958 $2.1E+08$ $2E+08$ IC 487013.5935.40.7132.308 $2.6E+08$ 9E+07IC 515210.0149.22.4616.8611.6E+075E+07UGC 1189113.6387.40.9663.8991.1E+082E+07UGC 12011.7852.82.2651.286.8E+077E+07UGC 120013.5359.10.28750.89928.7E+078E+07NGC 114012.0487.23.3584.9222.5E+091E+09NGC 1427A12.9744.90.20730.77824.3E+088E+08NGC 180012.8253.30.76791.822E+082E+08UGC 201013.7856.50.35710.95293.3E+082E+08UGC 300910.41275.42.4389.0081.9E+093E+09UGC 667012.5796.90.68781.6092.3E+083E+08UGC 830313.2742.60.37961.21.6E+081E+08UGC 56712.3542.60.72171.8982.3E+083E+08UGC 056614.4316.60.10.254.833,7126E+06UGC 253711.3475.60.310.79548.9E+083E+08UGC 563711.3156.60.10.254.833,7126E+06UGC 537311.417.50.310.79548.9E+083E+08UGC 537311.4	UGC 5151	13.5	80.9	0.5642	1.112	1.2E+08	8E+07
IC 48/013.5935.4 $0.713$ 2.3082.06±40899±07UGC 1189113.6387.40.9663.8991.1E±07EE±07UGC 1189113.6387.40.9663.8991.1E±082E±07UGC 19211.7852.82.2651.286.8E±077E±07UGC 120013.5359.10.28750.89928.7E±078E±07NGC 114012.0487.23.3584.9222.5E±091E±09NGC 140012.8253.30.76791.822E±082E±08NGC 291511.775.20.8891.6886.9E±071E±08UGC 0700013.7856.50.35710.95293.3E±082E±08UGC 0700013.7856.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 563711.3195.63.4216.4056.9E±085E±08UGC 537311.40.2550.3761.21.6E±081E±08UGC 537311.41.750.310.549.76.5238E±07UGC 537311.4	NGC 5408	11.4	31.1	2.825	2.958	2.1E+08	2E+08
IC 315210.0149.22.4616.8611.0E+07SE+07UGC 1189113.6387.40.9663.8991.1E+082E+07UGC 19211.7852.82.2651.286.8E+077E+07UGC 120013.5359.10.28750.89928.7E+078E+07NGC 114012.0487.23.3584.9222.5E+091E+09NGC 1427A12.9744.90.20730.77824.3E+088E+08NGC 180012.8253.30.76791.822E+082E+08UGC 800910.41275.42.4389.0081.9E+093E+09UGC 202313.5462.30.31440.78514.7E+074E+07UGC 563711.3195.63.4216.4056.9E+085E+08UGC 566712.5796.90.68781.6092.3E+083E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 563711.3195.63.4216.4056.9E+085E+08UGC 537311.4117.50.310.79548.9E+086E+08UGC 537314.42 <td>IC 4870</td> <td>13.59</td> <td>35.4</td> <td>0.713</td> <td>2.308</td> <td>2.6E+08</td> <td>9E+07</td>	IC 4870	13.59	35.4	0.713	2.308	2.6E+08	9E+07
UGC 1189113.63 $87.4$ 0.966 $3.899$ $1.1E+08$ $2E+07$ UGC 19211.78 $52.8$ $2.265$ $1.28$ $6.8E+07$ $7E+07$ UGC 430510.74 $29.9$ 1.147 $2.616$ $1.1E+07$ $4E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ NGC 1140 $12.04$ $87.2$ $3.358$ $4.922$ $2.5E+09$ $1E+09$ NGC 1427A $12.97$ $44.9$ $0.2073$ $0.7782$ $4.3E+08$ $8E+08$ NGC 2915 $11.7$ $75.2$ $0.889$ $1.688$ $6.9E+07$ $1E+08$ UGC 07000 $13.78$ $56.5$ $0.3571$ $0.9529$ $3.3E+08$ $2E+08$ UGC 8009 $10.41$ $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $8E+08$ UGC 1547 $13.97$ $22.8.8$ $0.307$ $0.7954$ $8.9E+08$ $8E+08$ UGC 03660 $14.43$ $16.6$ $0.11$ $0.25$ $4.833,712$ $6E+08$ UGC 0373 $11.4$ $17.5$ $0.31$ $0.54$ $9.760,523$ $8E+07$ UGC 555 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 03860 $14.43$ $16.6$ $0.11$ $0.25$ $4.833,712$ $6E+06$ UGC 0373 $11.4$ $17.5$ $0.31$	IC 5152	10.01	49.2	2.461	6.861	1.6E+07	5E+07
UGC 19211.7852.82.2651.28 $6.8E+07$ $7E+07$ UGC 430510.7429.91.1472.6161.1E+07 $4E+07$ UGC 120013.5359.10.28750.8992 $8.7E+07$ $8E+07$ NGC 114012.04 $87.2$ 3.3584.9222.5E+09 $1E+09$ NGC 1427A12.9744.90.20730.77824.3E+08 $8E+08$ NGC 180012.8253.30.7679 $1.82$ $2E+08$ $2E+08$ UGC 0700013.7856.50.35710.9529 $3.3E+08$ $2E+08$ UGC 800910.41275.42.4389.008 $1.9E+09$ $3E+09$ UGC 563711.3195.6 $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 667012.5796.90.6878 $1.609$ $2.3E+08$ $3E+08$ UGC 154713.97228.80.307 $0.7954$ $8.9E+08$ $6E+08$ UGC 0364714.0225.20.2011 $0.7536$ $2E+08$ $2E+07$ UGC 0364714.4316.60.10.25 $4.833,712$ $6E+06$ UGC 0364714.4316.60.310.54 $9,760,523$ $8E+07$ UGC 537311.417.50.310.54 $9,760,523$ $8E+07$ UGC 537311.417.50.310.54 $9,760,523$ $8E+07$ UGC 537311.417.50.310.54 $9,760,523$ $8E+07$ UGC 537311.417.50.310.5	UGC 11891	13.63	87.4	0.966	3.899	1.1E + 08	2E+07
UGC 4305 $10.74$ $29.9$ $1.147$ $2.616$ $1.1E+07$ $4E+07$ UGC 1200 $13.53$ $59.1$ $0.2875$ $0.8992$ $8.7E+07$ $8E+07$ NGC 1140 $12.04$ $87.2$ $3.358$ $4.922$ $2.5E+09$ $1E+09$ NGC 1427A $12.97$ $44.9$ $0.2073$ $0.7782$ $4.3E+08$ $8E+08$ NGC 1800 $12.82$ $53.3$ $0.7679$ $1.82$ $2E+08$ $2E+08$ NGC 2915 $11.7$ $75.2$ $0.889$ $1.688$ $6.9E+07$ $1E+08$ UGC 07000 $13.78$ $56.5$ $0.3571$ $0.9529$ $3.3E+08$ $2E+08$ UGC 8009 $10.41$ $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 6670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 533 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 1547 $13.97$ $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 03667 $14.43$ $16.6$ $0.1$ $0.25$ $4.833,712$ $6E+06$ UGC 2373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ UGC 2373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ UGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 25373 $11.4$ $17.5$ $0.31$ <td>UGC 192</td> <td>11.78</td> <td>52.8</td> <td>2.265</td> <td>1.28</td> <td>6.8E + 07</td> <td>7E+07</td>	UGC 192	11.78	52.8	2.265	1.28	6.8E + 07	7E+07
UGC 120013.5359.1 $0.2875$ $0.8992$ $8.7E-47$ $8E+47$ NGC 114012.04 $87.2$ $3.358$ $4.922$ $2.5E+09$ $1E+09$ NGC 147A12.97 $44.9$ $0.2073$ $0.7782$ $4.3E+08$ $8E+08$ NGC 180012.82 $53.3$ $0.7679$ $1.82$ $2E+08$ $2E+08$ UGC 0700013.78 $56.5$ $0.3571$ $0.9529$ $3.3E+08$ $2E+08$ UGC 000910.41 $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 563711.31 $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 667012.57 $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 563313.27 $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 154713.97 $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 2455 $11.99$ $31.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9.760,523$ $8E+07$ UGC 2455 $10.9$ $46.3$ $51.73$ $9.202$ $2.5E+08$ $2E+08$ UGC 2535 $11.79$ $58$ $0.669$ $1.632$ $1.3E+07$ $5E+07$ UGC 2455 $10.9$ $58$ $0.669$ $1.632$ <t< td=""><td>UGC 4305</td><td>10.74</td><td>29.9</td><td>1.147</td><td>2.616</td><td>1.1E + 07</td><td>4E + 07</td></t<>	UGC 4305	10.74	29.9	1.147	2.616	1.1E + 07	4E + 07
NGC 114012.0487.23.3584.922 $2.5E+09$ $1E+09$ NGC 1427A12.9744.90.20730.77824.3E+088E+08NGC 180012.8253.30.76791.82 $2E+08$ $2E+08$ NGC 291511.775.20.8891.688 $6.9E+07$ $1E+09$ UGC 0700013.7856.50.35710.9529 $3.3E+08$ $2E+08$ UGC 800910.41275.42.4389.008 $1.9E+09$ $3E+09$ UGC 563711.3195.6 $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 667012.5796.90.68781.609 $2.3E+08$ $3E+08$ UGC 530313.2742.60.37961.21.6E+08 $1E+08$ UGC 154713.97228.80.3070.7954 $8.9E+08$ $6E+08$ UGC 0366014.4316.60.10.25 $4.833,712$ $6E+06$ UGC 2537311.417.50.310.549.760,523 $8E+07$ UGC 537311.417.50.310.549.760,523 $8E+07$ UGC 545510.946.35.1739.202 $2.5E+08$ $2E+08$ NGC 291012.9444.20.69551.276 $3.5E+07$ $2E+08$ NGC 201012.9444.20.69551.276 $3.5E+07$ $2E+08$ NGC 201012.9444.20.69551.276 $3.5E+09$ $2E+08$ NGC 201012.9444.20.69551.276	UGC 1200	13.53	59.1	0.2875	0.8992	8.7E+07	8E+07
NGC 1427A12.9744.90.20730.77824.3E+088E+08NGC 180012.8253.30.76791.822E+082E+08NGC 291511.775.20.8891.688 $6.9E+07$ 1E+08UGC 0700013.7856.50.35710.95293.3E+082E+08UGC 202313.54 $62.3$ 0.31440.7851 $4.7E+07$ $4E+07$ UGC 563711.3195.63.421 $6.405$ $6.9E+08$ $5E+08$ UGC 667012.5796.90.68781.6092.3E+08 $3E+08$ UGC 154713.97228.80.3070.7954 $8.9E+08$ $6E+08$ UGC 0567714.0225.20.20110.7536 $2E+08$ $2E+08$ UGC 0386014.4316.60.10.25 $4.833,712$ $6E+06$ UGC 237311.417.50.310.549.706,523 $8E+07$ UGC 537311.417.50.310.549.706,523 $8E+07$ UGC 54510.946.35.1739.2022.5E+08 $2E+08$ UGC 245510.946.35.1739.2022.5E+08 $2E+08$ UGC 656511.2452.32.0033.5233.5E+07 $5E+07$ UGC 656511.2452.32.0033.5233.5E+07 $5E+07$ UGC 61615.7778.60.50.53.3E+09 $1E+09$ UGC 601615.7778.60.50.53.2E+07 $2E+08$	NGC 1140	12.04	87.2	3.358	4.922	2.5E + 09	1E+09
NGC 180012.8253.30.76791.82 $2E+08$ $2E+08$ NGC 291511.775.20.8891.6886.9E+071E+08UGC 0700013.7856.50.35710.95293.3E+08 $2E+08$ UGC 800910.41275.42.4389.0081.9E+09 $3E+09$ UGC 202313.5462.30.31440.78514.7E+07 $4E+07$ UGC 667012.5796.90.68781.6092.3E+08 $3E+08$ UGC 830313.2742.60.37961.21.6E+081E+08UGC 154713.97228.80.3070.79548.9E+086E+08UGC 0364714.0225.20.20110.75362E+082E+08UGC 337311.417.50.310.549.760,5238E+07UGC 537311.417.50.310.549.760,5238E+07UGC 55510.946.35.1739.2022.5E+082E+08UGC 245510.946.35.1739.2022.5E+082E+08UGC 656511.2452.32.0033.5233.5E+075E+07UGC 640615.7778.60.50.53.3E+084E+07UGC 601615.7778.60.50.53.3E+084E+07UGC 602411.55121.75.86510.653.9E+091E+09UGC 600614.4852.70.27550.93151E+084E+07	NGC 1427A	12.97	44.9	0.2073	0.7782	4.3E + 08	8E+08
NGC 291511.775.20.8891.688 $6.9E+07$ $1E+08$ UGC 0700013.7856.50.35710.9529 $3.3E+08$ $2E+08$ UGC 800910.41275.42.4389.008 $1.9E+09$ $3E+09$ UGC 202313.5462.30.31440.7851 $4.7E+07$ $4E+07$ UGC 563711.3195.6 $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 667012.5796.90.6878 $1.609$ $2.3E+08$ $3E+08$ UGC 154713.97228.8 $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 7512.3542.6 $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC 0364714.0225.2 $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 237311.417.5 $0.31$ $0.54$ $9.760,523$ $8E+07$ UGC 537311.417.5 $0.31$ $0.54$ $9.760,523$ $8E+07$ UGC 245510.9 $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 245511.24 $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 143812.9958 $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 593511.73 $74.4$ $6.15$ $9.56$ $3.9E+09$ $2E+09$ UGC 601615.77 $78.6$ $0.5$ $0.5$ $3.3E+09$ $4E+07$ UGC 602411.55121.7 $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 59951	NGC 1800	12.82	53.3	0.7679	1.82	2E+08	2E + 08
UGC 07000 $13.78$ $56.5$ $0.3571$ $0.9529$ $3.3E+08$ $2E+08$ UGC 8009 $10.41$ $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 2023 $13.54$ $62.3$ $0.3144$ $0.7851$ $4.7E+07$ $4E+07$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 6670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 8303 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 75 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 03860 $14.43$ $16.6$ $0.1$ $0.255$ $4.833,712$ $6E+06$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ UGC 5455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.55$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ <td< td=""><td>NGC 2915</td><td>11.7</td><td>75.2</td><td>0.889</td><td>1.688</td><td>6.9E+07</td><td>1E+08</td></td<>	NGC 2915	11.7	75.2	0.889	1.688	6.9E+07	1E+08
UGC 8009 $10.41$ $275.4$ $2.438$ $9.008$ $1.9E+09$ $3E+09$ UGC 2023 $13.54$ $62.3$ $0.3144$ $0.7851$ $4.7E+07$ $4E+07$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 6670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 8303 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 1547 $13.97$ $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 03860 $14.43$ $16.6$ $0.1$ $0.255$ $4,833,712$ $6E+06$ UGC 3373 $11.4$ $17.5$ $0.31$ $0.544$ $9,760,523$ $8E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.544$ $9,760,523$ $8E+07$ UGC 5455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+08$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 6995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+09$ $4E+07$	UGC 07000	13.78	56.5	0.3571	0.9529	3.3E+08	2E + 08
UGC 2023 $13.54$ $62.3$ $0.3144$ $0.7851$ $4.7E+07$ $4E+07$ UGC 5637 $11.31$ $95.6$ $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 6670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 8303 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 1547 $13.97$ $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 03660 $14.43$ $16.6$ $0.1$ $0.25$ $4.833,712$ $6E+06$ UGC 4205 $11.99$ $31.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9.760,523$ $8E+08$ UGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+09$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.8655$ $10.65$ $3.9E+09$ $4E+07$ UGC 5995 $12.68$ $70.5$ $6.15$	UGC 8009	10.41	275.4	2.438	9.008	1.9E+09	3E+09
UGC 563711.3195.6 $3.421$ $6.405$ $6.9E+08$ $5E+08$ UGC 667012.5796.9 $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 830313.27 $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 154713.97 $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 7512.35 $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC0364714.02 $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC0386014.4316.6 $0.1$ $0.25$ $4,833,712$ $6E+06$ UGC 537311.4 $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ IC 1613 $9.85$ $26.8$ $1.42$ $3.69$ $3.2E+07$ $2E+08$ AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+09$ $2E+09$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $2E+09$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+09$ $4E+07$	UGC 2023	13.54	62.3	0.3144	0.7851	4.7E+07	4E+07
UGC 6670 $12.57$ $96.9$ $0.6878$ $1.609$ $2.3E+08$ $3E+08$ UGC 8303 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 1547 $13.97$ $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 75 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC 03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC 03860 $14.43$ $16.6$ $0.1$ $0.25$ $4.833,712$ $6E+06$ UGC 3373 $11.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ UG 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 2010 $12.94$ $44.2$ $0.6955$ $1.276$ $3.5E+07$ $5E+07$ UGC 5535 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.2E+09$ $4E+07$	UGC 5637	11.31	95.6	3.421	6.405	6.9E+08	5E+08
UGC 8303 $13.27$ $42.6$ $0.3796$ $1.2$ $1.6E+08$ $1E+08$ UGC 1547 $13.97$ $228.8$ $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 75 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC03860 $14.43$ $16.6$ $0.1$ $0.25$ $4.833,712$ $6E+06$ UGC 4205 $11.99$ $31.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ UGC 5475 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $4E+07$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+09$ $4E+07$	UGC 6670	12.57	96.9	0.6878	1.609	2.3E+08	3E+08
UGC 154713.97228.8 $0.307$ $0.7954$ $8.9E+08$ $6E+08$ UGC 7512.3542.6 $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC0364714.0225.2 $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC0386014.4316.6 $0.1$ $0.25$ $4,833,712$ $6E+06$ UGC 420511.99 $31.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 537311.417.5 $0.31$ $0.54$ $9,760,523$ $8E+07$ IC 1613 $9.85$ $26.8$ $1.42$ $3.69$ $3.2E+07$ $2E+08$ AGC 245510.9 $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 201012.94 $44.2$ $0.6955$ $1.276$ $3.5E+08$ $3E+08$ UGC 565511.24 $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99 $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 593511.73 $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 601615.77 $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 602411.55121.7 $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 599512.68 $70.5$ $6.15$ $9.56$ $3.3E+09$ $4E+07$	UGC 8303	13.27	42.6	0.3796	1.2	1.6E+08	1E+08
UGC 75 $12.35$ $42.6$ $0.7217$ $1.898$ $2.3E+08$ $3E+08$ UGC03647 $14.02$ $25.2$ $0.2011$ $0.7536$ $2E+08$ $2E+08$ UGC03860 $14.43$ $16.6$ $0.1$ $0.25$ $4,833,712$ $6E+06$ UGCA205 $11.99$ $31.4$ $0.2554$ $0.6738$ $1.1E+07$ $5E+07$ UGC 5373 $11.4$ $17.5$ $0.31$ $0.54$ $9,760,523$ $8E+07$ IC 1613 $9.85$ $26.8$ $1.42$ $3.69$ $3.2E+07$ $2E+08$ AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 2010 $12.94$ $44.2$ $0.6955$ $1.276$ $3.5E+08$ $3E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+09$ $4E+07$	UGC 1547	13.97	228.8	0.307	0.7954	8.9E+08	6E+08
UGC0364714.0225.20.20110.7536 $2E+08$ $2E+08$ UGC0386014.4316.60.10.254,833,712 $6E+06$ UGCA20511.9931.40.25540.67381.1E+07 $5E+07$ UGC 537311.417.50.310.549,760,523 $8E+07$ IC 16139.8526.81.423.69 $3.2E+07$ $2E+08$ AGC 245510.946.3 $5.173$ 9.202 $2.5E+08$ $2E+08$ NGC 201012.9444.20.69551.276 $3.5E+08$ $3E+08$ UGC 656511.2452.32.003 $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99580.6691.6321.3E+08 $1E+08$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.75.86510.65 $3.9E+09$ $1E+09$ UGC 599512.6870.56.159.56 $3.3E+08$ $4E+07$ UGC 1206014.4852.70.27250.9315 $1E+08$ $4E+07$	UGC 75	12.35	42.6	0.7217	1.898	2.3E+08	3E+08
UGC0386014.4316.60.10.254,833,712 $6E+06$ UGCA20511.9931.40.25540.67381.1E+07 $5E+07$ UGC 537311.417.50.310.549,760,523 $8E+07$ IC 16139.8526.81.423.69 $3.2E+07$ $2E+08$ AGC 245510.946.3 $5.173$ 9.202 $2.5E+08$ $2E+08$ NGC 201012.9444.20.69551.276 $3.5E+08$ $3E+08$ UGC 656511.2452.32.003 $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99580.6691.632 $1.3E+08$ $1E+08$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.75.86510.65 $3.9E+09$ $1E+09$ UGC 599512.6870.56.159.56 $3.3E+08$ $4E+07$ UGC 1206014.4852.70.27250.9315 $1E+08$ $4E+07$	UGC03647	14.02	25.2	0.2011	0.7536	2E+08	2E+08
UGCA20511.99 $31.4$ 0.25540.6738 $1.1E+07$ $5E+07$ UGC 537311.417.50.310.549,760,523 $8E+07$ IC 16139.8526.81.423.69 $3.2E+07$ $2E+08$ AGC 245510.946.3 $5.173$ 9.202 $2.5E+08$ $2E+08$ NGC 201012.9444.20.6955 $1.276$ $3.5E+08$ $3E+08$ UGC 656511.2452.32.003 $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99580.6691.632 $1.3E+08$ $1E+08$ UGC 593511.7374.46.159.56 $5.9E+09$ $2E+09$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.7 $5.865$ 10.65 $3.9E+09$ $1E+09$ UGC 599512.6870.5 $6.15$ $9.56$ $3.3E+08$ $4E+07$ UGC 1206014.48 $52.7$ 0.27250.9315 $1E+08$ $4E+07$	UGC03860	14.43	16.6	0.1	0.25	4,833,712	6E+06
UGC 537311.417.50.310.549,760,523 $8E+07$ IC 16139.8526.81.423.69 $3.2E+07$ $2E+08$ AGC 245510.946.3 $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 201012.9444.20.6955 $1.276$ $3.5E+08$ $3E+08$ UGC 656511.2452.32.003 $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99580.6691.632 $1.3E+08$ $1E+08$ UGC 593511.7374.46.159.56 $5.9E+09$ $2E+09$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.75.86510.65 $3.9E+09$ $1E+09$ UGC 599512.6870.56.159.56 $3.3E+08$ $4E+07$ UGC 1206014.4852.70.27250.9315 $1E+08$ $4E+07$	UGCA205	11.99	31.4	0.2554	0.6738	1.1E+07	5E+07
IC 1613 $9.85$ $26.8$ $1.42$ $3.69$ $3.2E+07$ $2E+08$ AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 2010 $12.94$ $44.2$ $0.6955$ $1.276$ $3.5E+08$ $3E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+08$ $4E+07$ UGC 12060 $14.48$ $52.7$ $0.2725$ $0.9315$ $1E+08$ $4E+07$	UGC 5373	11.4	17.5	0.31	0.54	9,760,523	8E+07
AGC 2455 $10.9$ $46.3$ $5.173$ $9.202$ $2.5E+08$ $2E+08$ NGC 2010 $12.94$ $44.2$ $0.6955$ $1.276$ $3.5E+08$ $3E+08$ UGC 6565 $11.24$ $52.3$ $2.003$ $3.523$ $3.5E+07$ $5E+07$ UGC 1438 $12.99$ $58$ $0.669$ $1.632$ $1.3E+08$ $1E+08$ UGC 5935 $11.73$ $74.4$ $6.15$ $9.56$ $5.9E+09$ $2E+09$ UGC 6016 $15.77$ $78.6$ $0.5$ $0.5$ $3.3E+08$ $4E+07$ UGC 6024 $11.55$ $121.7$ $5.865$ $10.65$ $3.9E+09$ $1E+09$ UGC 5995 $12.68$ $70.5$ $6.15$ $9.56$ $3.3E+08$ $4E+07$ UGC 12060 $14.48$ $52.7$ $0.2725$ $0.9315$ $1E+08$ $4E+07$	IC 1613	9.85	26.8	1.42	3.69	3.2E+07	2E+08
NGC 2010         12.94         44.2         0.6955         1.276         3.5E+08         3E+08           UGC 6565         11.24         52.3         2.003         3.523         3.5E+07         5E+07           UGC 1438         12.99         58         0.669         1.632         1.3E+08         1E+08           UGC 5935         11.73         74.4         6.15         9.56         5.9E+09         2E+09           UGC 6016         15.77         78.6         0.5         0.5         3.3E+08         4E+07           UGC 6024         11.55         121.7         5.865         10.65         3.9E+09         1E+09           UGC 5995         12.68         70.5         6.15         9.56         3.3E+08         4E+07           UGC 12060         14.48         52.7         0.2725         0.9315         1E+08         4E+07	AGC 2455	10.9	46.3	5.173	9.202	2.5E + 08	2E+08
UGC 656511.2452.32.003 $3.523$ $3.5E+07$ $5E+07$ UGC 143812.99580.6691.632 $1.3E+08$ $1E+08$ UGC 593511.7374.46.159.56 $5.9E+09$ $2E+09$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.75.86510.65 $3.9E+09$ $1E+09$ UGC 599512.6870.56.159.56 $3.3E+08$ $4E+07$ UGC 1206014.4852.70.27250.9315 $1E+08$ $4E+07$	NGC 2010	12.94	44.2	0.6955	1.276	3.5E+08	3E+08
UGC 143812.99580.6691.6321.3E+081E+08UGC 593511.7374.46.159.56 $5.9E+09$ $2E+09$ UGC 601615.7778.60.50.5 $3.3E+08$ $4E+07$ UGC 602411.55121.7 $5.865$ 10.65 $3.9E+09$ $1E+09$ UGC 599512.6870.56.159.56 $3.3E+08$ $4E+07$ UGC 100014.4852.70.27250.9315 $1E+08$ $4E+07$	UGC 6565	11.24	52.3	2.003	3.523	3.5E+07	5E+07
UGC 5935         11.73         74.4         6.15         9.56         5.9E+09         2E+09           UGC 6016         15.77         78.6         0.5         0.5         3.3E+08         4E+07           UGC 6024         11.55         121.7         5.865         10.65         3.9E+09         1E+09           UGC 5995         12.68         70.5         6.15         9.56         3.3E+08         4E+07           UGC 12060         14.48         52.7         0.2725         0.9315         1E+08         4E+07	UGC 1438	12.99	58	0.669	1.632	1.3E + 08	1E+08
UGC 6016         15.77         78.6         0.5         0.5         3.3E+08         4E+07           UGC 6024         11.55         121.7         5.865         10.65         3.9E+09         1E+09           UGC 5995         12.68         70.5         6.15         9.56         3.3E+08         4E+07           UGC 12060         14.48         52.7         0.2725         0.9315         1E+08         4E+07	UGC 5935	11.73	74.4	6.15	9.56	5.9E+09	2E+09
UGC 6024         11.55         121.7         5.865         10.65 $3.9E+09$ $1E+09$ UGC 5995         12.68         70.5         6.15         9.56 $3.3E+09$ $4E+08$ UGC 12060         14.48         52.7         0.2725         0.9315 $1E+08$ $4E+07$	UGC 6016	15.77	78.6	0.5	0.5	3.3E+08	4E + 07
UGC 5995         12.68         70.5         6.15         9.56 $3.3E+09$ $4E+08$ UGC 12060         14.48         52.7         0.2725         0.9315         1E+08 $4E+07$	UGC 6024	11.55	121.7	5.865	10.65	3.9E+09	1E+09
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	UGC 5995	12.68	70.5	6.15	9.56	3.3E+09	4E+08
	UGC 12060	14 48	52.7	0.2725	0.9315	1E+08	4E+00

Table 3

Comparison of Some physical properties between our work of Irregular Galaxies and our Galaxy (Milky Way).

Parameter	A <sub>0</sub> (Kpc)	$M_{I}\;(M_{\odot})$	$V_{\rm H} \ {\rm km} \ {\rm s}^{-1}$	Btc	V <sub>rot</sub> km	Lfir L <sub>O</sub>	Lopt L <sub>O</sub>
Milky way	33.6[1]	$\frac{1.5\text{-}8.5 \times 10^{11[1]}}{9.96 \times 10^9}$	229[22]	20.3[22]	24[1]	$8 \times 10^{9[23]}$	$3 \times 10^{9} {}^{[23]}$
Irregular Galaxies	5.664258		740.43	12.2	64.4	$6 \times 10^{8}$	$3 \times 10^{8}$

Table 4 Correlations coefficients Marked correlations are significant at p < .05000 N = 70, Means & Std.Dev.

	Means	Std.Dev.	Log L <sub>OPT</sub>	Log L <sub>FIR</sub>	Log A <sub>0</sub>	Log Vro <sup>2</sup>	$\logM_{\rm I}$
Log L <sub>OPT</sub>	9.035040	0.746004	1.000000	0.757240	0.474408	0.608691	0.702372
Log L <sub>FIR</sub>	7.894329	1.029273	0.757240	1.000000	0.382888	0.620982	0.558827
Log A <sub>0</sub>	0.647751	0.329477	0.474408	0.382888	1.000000	0.283993	0.469316
Log Vro <sup>2</sup>	3.428298	0.538726	0.608691	0.620982	0.283993	1.000000	0.815085
log M <sub>I</sub>	8.653811	0.955864	0.702372	0.558827	0.469316	0.815085	1.000000

Table 5

Mean (average) variables and standard error for sample irregular galaxies.

	Valid N	Mean	Std.Dev.	Standard Error
				LIIOI
Log L <sub>OPT</sub>	70	9.035040	0.746004	0.089164
Log L <sub>FIR</sub>	70	7.894329	1.029273	0.123022
Log A <sub>0</sub>	70	0.647751	0.329477	0.039380
Log Vrot <sup>2</sup>	70	3.428298	0.538726	0.064390
log M <sub>I</sub>	70	8.653811	0.955864	0.114248

between some physical qualities of the investigated galaxies and the Milky Way's physical attributes.

#### 1.3. The distance (D)

Understanding the structures that galaxies create and the activities; that occur inside them requires determining the distances between them. More than that, only distance gives the scientific framework for determining galaxies' distances. In astronomy, distances are being calculated using a set of essential object types, and we can now estimate distances on a scale of a few parsecs [12]. The distances of the selected galaxies in our sample are shown in Table 1. Here *D* is calculated from the systematic velocity of HI, with the embraced Hubble constant of  $H_0 = 70 km s^{-1} Mpc^{-1}$  [13,14]. So, we calculate the distance to the galaxy in the unit (Mpc) that is calculated from Hubble's law, which is taken from Ref. [13]:

$$D = \frac{V_H}{H_0} \tag{1}$$

where  $V_H$  is Mean Heliocentric radial velocity in a unit (Km/s).



Fig. 1. Maximum rotation velocity  $(V_{rot})^2 (km/s)^2$  as function of total mass  $M_I(M_{\odot})$  of sample Irregular galaxies with error bars.



Fig. 2. Linear diameter  $LogA_0(Mpc)$  as a function of total mass  $logM_1(M_{\odot})$  of sample Irregular galaxies with error bars.



Fig. 3. Far infrared luminosity  $LogL_{fir}(L_{\Theta})$  as a function of total mass  $logM_{I}(M_{\odot})$  of sample Irregular galaxies with error bars.



Fig. 4. Optical luminosity  $LogL_{opt}(L_{\Theta})$  as a function of total mass  $logM_{I}(M_{\odot})$  of sample Irregular galaxies with error bars.



Fig. 5. Optical luminosity  $LogL_{opt}(L_{\Theta})$  as a function of far infrared luminosity  $LogL_{fir}(L_{\Theta})$  of sample Irregular galaxies with error bars.

#### 1.4. Total mass of galaxies

We calculated the total mass of the galaxy in the unit  $(M_{\Theta})$  from Ref. [15]:

$$M_I = 2.45 \times 10^4 A_0 (\Delta v_{20} / \sin i) \tag{2}$$

At which time width at 20 percent peak maximum density in (*km.*  $sec^{-1}$ ) is ( $\Delta v_{20}$ ), and (*i*) is the inclination in degree (<sup>0</sup>).

If a strictly circular motion of galaxies that assumed for an isolated system, the maximum rotational velocity ( $V_{max} = \Delta v_{20}/\sin i$ ). The above equation (2) becomes [16]:

$$M_I = 2.45 \times 10^4 A_0 (V_{max})^2 \tag{3}$$

where  $A_0$  is the linear diameter of galaxies in unit *Kpc*, we estimate the value  $A_0$  from Ref. [16], and all these parameter is shown in Table 1.

$$A_0 = 0.29087 \times d_{25} \times D \tag{4}$$

The dynamical mass ( $\frac{GM_r}{r^2} = V_{rot}^2 - \sigma^2$ ), where the mass distribution is spherically symmetric and the velocity dispersion ( $\sigma$ ) is isotropic. This gives ( $\rho \propto r^{-2}$ ) for the right-hand side of an isothermal sphere ( $V_{rot}^2 + \sigma^2$ ), Even so, minimum values of line-of-sight velocity may be obtained from a range of circular orbits of spherical shape at radius (r), as well as the virial rule extended to a uniform density sphere with fixed and isotropic velocity dispersion (implied by the solidbody rotation curves of the optical components of many dwarf galaxies) [17].

The galaxy's total mass, which seemed firmly established in the 1960s, has subsequently become a

subject of considerable uncertainty. Calculating total mass out to the distance of the furthest large hydrogen clouds is straightforward. Velocities are low in the core parts of the system; because not much mass is inside the orbit of the gas clouds; they will be high at intermediate distances because most of the material is inside the orbit of the gas clouds in that scenario, and the gravitational pull inward is at its strongest. Because the clouds hold almost all the material, velocities drop dramatically over long distances [18].

## 1.5. Far infrared luminosity $(L_{fir})$ and blue optical luminosity $(L_{opt})$

The development of far-infrared diagnostics to determine the circumstances in infrared-bright galaxies, which are frequently interacting or merging galaxies is crucial for galaxy evolution research. Gasrich galaxy interactions and mergers generate centrally focused, infrared-brilliant star formation, as well as veiled or partially obscured nuclear accretion activity via dissipative collapse, and play an important role in galaxy evolution [19].

Far-infrared wavelengths allow for the observation of dust-enshrouded galaxies without significant extinction effects, as well as several diagnostics of the physical conditions in their interstellar medium [20].

The far-infrared diagnostics improvement, which is regularly collaborating or blending galaxies, is critical for the investigation of cosmic system galaxy advancement. Far-infrared glow studies have now established a critical role in the development of massive galaxies in the Universe. Like far-infrared galaxies, the emission from youthful massive stars, consumed via dust grains in their medium interstellar, is re-transmitted as warm continuum outflow at farinfrared frequencies [21] and contained in Table 2.

Far-infrared luminosity ( $L_{fir}$ ) are given for (40–120) µm wavelength range [22]:

$$L_{fir} = 3.94 \times 10^5 \times D^2 \times (2.58 * f_{60} + f_{100})$$
(5)

Here Far-infrared luminosity  $(L_{fir})$  in unit  $(L_{\Theta})$ . Where  $F_{60}\mu m$  and  $F_{100} \mu m$  are IRAS Far-infrared band fluxes at 60  $\mu m$  and 100  $\mu m$  in unit Jansky (Jy), where 1 J y=  $10^{-26}W m^{-2}Hz^{-1}$  (in units SI) and listed in Table 2.

While Optical luminosity is still the most common and significant population tracer of the distribution of the volume density of galaxies. Optical luminosity was also the first tracer to be analyzed in specific since it has historically been easier to identify galaxies at optical wavelengths than in the radio spectrum [23].

The Blue optical luminosity (In optical band at 4400  $A^0$ ), ( $L_{opt}$ ) are computed in unit solar luminosity ( $L_{\Theta}$ ) by Ref. [23]:

$$\mathcal{L}_{\rm opt} = D^2 \times 10^{12.193} \times 10^{-0.4Btc} \tag{6}$$

where (Btc) is apparent B-mag corrected for galactic extinction internal extinction and k-correction, also listed in Table 2.

The basic data for sample data galaxies are given in Table 1 and it's organized per name galaxy as follows:

Column (1): names are given for each galaxy, taken from the NED (https://ned.ipac.caltech.edu/) survey.

Column (2): the other names of chosen sample galaxies, taken from the database and a collection of tools to study the physics of galaxies and cosmology HyperLEDA (http://atlas.obs-hp.fr/hyperleda/).

Column (3): Morphological type of irregular galaxies, the morphological type, or Hubble type, is coded from early to late types as: Io-IB-IB-IBm- IAB, from NED survey.

Column (4): log  $d_{25}$  in unit (arcmin) taken from HyperLEDA.

Column (5):  $d_{25}$  in unit (arcmin) calculated from:  $d_{25} = 0.1 \times 10^{log d25}$ 

Column (6): Mean Heliocentric radial velocity is taken from HyperLEDA.

Column (7): Distance of galaxies (*D*) in unit (*Mpc*), calculated from "Eq. (1)" for our work.

Column (8): Linear diameter of galaxies  $(A_0)$  in unit (kpc), calculated from "Eq. (4)".

Column (9): total mass of irregular galaxies  $(M_I)$  in unit solar mass  $(M_{\Theta})$ , taken from "Eq. (3)".

While Table 2 listed some physical properties of (70) sample Irregular Galaxies, as follows:

Column (2): the Apparent B-mag bt corrected for galactic extinction (btc) in unit (mag), taken from the database and a collection of tools to study the physics of galaxies and cosmology (HyperLEDA).

Column (3): This quantity is the physical maximum velocity rotation corrected for inclination (vrot), expressed in km/s, taken from HyperLEDA.

Column (4): Far-Infrared microns  $(f_{60})$  in unit (Jy) taken from NED.

Column (5): the logarithm value of the infrared flux in  $(f_{60})$  µm band in unit (Jy).

Column (6): far-infrared luminosity ( $L_{\text{fir}}$ ) in unit ( $L_{\Theta}$ ), calculated from "Eq. (5)" for our work.

Column (7): the blue optical luminosity Optical  $(L_{opt})$  in unit  $(L_{\Theta})$ ), taken from "Eq. (6)".

#### 2. Results

In this paper, statistical software (Microsoft Office Excel and STATISTICA) program was used to calculate, and investigate the relationship between several parameters (luminosity and mass).

Many regressions have been used to get a graph between these parameters. Investigation of an unbiased sample of active galaxies; with comprehensive observational data on relevant parameters at different wavelengths is essential for a statistically reliable test, for understanding the different physical conditions in these objects, and for testing the unification model.

In this research, methods were described to estimate, total mass  $M_I(M_{\odot})$ , linear diameter A<sub>0</sub>, farinfrared luminosity  $(L_{\rm fir})$  for  $(40-120)\mu m$  wavelength range and blue optical luminosity (Optical at  $4400A^o$ )  $(L_{opt})$  of irregular galaxies.

The statistical parameters are evaluated in this research to assess if there is a relationship between these parameters, like (total mass – far-infrared luminosity) and (total mass – blue optical luminosity). Besides, various regressions are employed in this paper to construct a plot between these variables.

All coefficients, including the distance effect, were measured between  $(L_{fir}, L_{opt})$  bands for our sample set of irregular galaxies. As a consequence, the false connections between luminosities and totals caused by the fact that more effective sources detected at vast distances significantly decreased using this method.

Analysis and a calculation of (70) samples of data of irregular galaxies show that there is a relationship between (total mass-rotation velocity), (total masslinear diameter), and (total mass-angular diameter) (see Table 1). The overall measurement results between (far-infrared luminosity-blue optical luminosity) are summarizing in Table 2. A comparison produced of the relationship between irregular galaxies and milky galaxies is shown in Table 3. Table 4 shows the correlation coefficient (r) and probability of chance correlation (P) between various parameters of (70) sampled irregular galaxies.

Finally, the descriptive statistics of mean (average) variables and standard error for sample irregular galaxies are shown in Table 5.

Figs. 1 and 2 demonstrate the mathematical equations computed in this paper for this irregular galaxies type. As we can see from these figures in this work, the relationship of the parameters between the total mass, rotation velocity, and linear diameter of these galaxies.

The results of the analysis of our sample data of irregular galaxies show that the total mass and linear diameter are closely related, as shown in Figs. 1 and 2. On the other hand, the total mass and far-infrared luminosity, the total mass, and blue optical luminosity are closely related, as shown in Figs. 3 and 4. While Fig. 5 shows a clear linear association between ( $L_{\text{fir}}$  and  $L_{opt}$ ), which could be associated with the recent formation of these galaxies.

#### 3. Discussion

From this research, it is possible to conclude that multiple regression analysis gives two main points: the total mass of an irregular galaxy is correlated with its linear diameter and velocity. Second, for irregular galaxies the correlations between total mass, linear diameter and velocity are significantly steeper, and the mathematical relationship between them is a direct relationship  $M_I(M_{\odot})$ , direct proportion with  $(A_0)$ ,  $(V_{rot})$ .

Our observations in this paper indicate that there is a strong connection between the curve rotation velocity and total mass, as shown in Fig. 1. The analysis of the ratio between mass and linear diameter is a direct relationship plotted in Fig. 2, a relationship and strong correlation between the irregular galaxy ( $M_I$  and  $L_{fir}$ ) shown in Fig. 3. Likewise, there is a strong connection between the relationships ( $L_{opt}$  and  $M_I$ ), as shown in Fig. 4. A clear linear association is obtained between ( $L_{fir}$  and  $L_{opt}$ ), which could be associated with the recent formation of these galaxies, see Fig. 5.

The total mass of the Milky Way is  $(1 - 1.5 \times 10^{11} M_{\Theta})$  [1] according to Table 3, and the total mass

of irregular galaxies is  $(9.69 \times 10^9 M_{\Theta})$  according to our work in this paper. Irregular galaxies have smaller sizes compared to the Milky Way, which is clear from Table 3. The study indicates that the ratio of the mass of the Milky Way to the mass of irregular galaxies is approximately (15) times greater than the sample of irregular galaxies. This is because the size of the spiral galaxy (and the Milky Way is a type of it) is greater than the irregular galaxies.

Also, in relation (log  $M_I - \log L_{fir}$ ) there is a clear relation with a positive and clear correlation coefficient ( $r \approx 0.558$ ), for sample irregular galaxies there is a strong intrinsic correlation coefficient ( $r \approx 0.815$ ) of the (log  $M_I - \log Vrot^2$ ) plot and  $r \approx 0.7023$  for relation (log  $M_I - \log L_{opt}$ ) as shown in Table 4.

The irregular galaxies, and because of their small size, the rotation velocity of these galaxies is greater than the Milky Way. And this is confirmed by our calculations in this paper, where we found that the average maximum rotational velocity ( $V_{rot}$ ) corrected from the inclination of the irregular galaxies is (64.4*km*), but the average rotation velocity ( $V_{rot}$ ) of the Milky Way is (24*km*) [1].

Also the calculations of our sample data, we found that the average value of the mean heliocentric radial velocity  $(V_H)$  of the irregular galaxy is (740.43km/s); while the average value of the mean heliocentric radial velocity  $(V_H)$  of the Milky Way is (229km/s) [17] as shown in Table 3 that has been obtained from the calculations in this research.

This study also revealed that the estimate of the ratio of the rotational velocity of the Milky Way to the rotational velocity of irregular galaxies is roughly equivalent to (0.3727), and on the other hand, the ratio of the mean heliocentric radial velocity of the Milky Way to the mean heliocentric radial velocity of irregular galaxies is roughly equivalent to (0.3093), because irregular galaxies do not have systems that slow down their speed, such as spiral arms and discs, which both are components of the Milky Way. So we estimate the ratio of the rotational velocity of the Milky Way to the rotation velocity of irregular galaxies, which is roughly equivalent to (0.3727).

From Table 3, we found the ratio  $(V_H)$  of the Milky Way to  $(V_H)$  [25] of irregular galaxies is roughly equivalent (0.3093) for the sample data of irregular galaxies, because irregular galaxies don't have systems that slow down their speed, like don't have spiral arms and discs, which both are components of the Milky Way.

Finally, the values of far-infrared luminosity  $(L_{fir})$ [ and the blue optical luminosity  $(L_{opt})$ , are  $(6 \times$   $10^{8}L_{\Theta}$ ), and  $(3 \times 10^{9})$  [26] respectively that appear in the Table 3 for irregular galaxies. They were less than the average values of far-infrared luminosity  $(L_{fir})$  and the blue optical luminosity  $(L_{opt})$ , which are  $(8 \times 10^{9}L_{\Theta})$  and  $(3 \times 10^{9}L_{\Theta})$  respectively for the our galaxy (Milky Way), where are calculated from the previous equations in this paper, and the reason for that is due to the dust that contains in the irregular galaxies, in addition to being newly formed.

#### 4. Conclusion

This work investigated a statistical analysis of the physical properties of the (70) samples from the database and a collection of tools to study some physical parameters of irregular galaxies (Hyper-LEDA) and the NASA/IPAC Extragalactic Database (NED) survey. Our reviews can be concluded by focusing on the following main points:

- 1) The total mass of irregular galaxies is related to a linear strong relationship with the linear diameter and heliocentric radial velocity  $V_{H}$ .
- 2) Irregular galaxies are commonly small, so we found the total mass of irregular galaxies is  $(9.69 \times 10^9 M_{\Theta})$ , about one-fifteenth of the mass of the Milky Way galaxy because they have no spiral or bulge center. Thus, due to their small sizes, they are flat to effects substantial like collapsing with massive galaxies and intergalactic clouds.
- 3) We have demonstrated the irregular galaxies take on no shape, it's not easy to measure them, but on average they are almost 5.6*Kpc* in linear diameter, and because of their small size, the rotation velocity of these galaxies is greater than the Milky Way.
- 4) We have shown that the mean of blue optical and infrared luminosities of irregular galaxies  $(3-6 \times 10^8 L_{\Theta})$  are very bright and bluer, which is a result of the gas and dust in them. This gas and dust is formed by many stars within an irregular galaxy, giving them their brightness, but not as much as the Milky Way galaxy.
- 5) Lastly, we have found the ratio of the radial velocity  $(V_H)$  of the Milky Way to  $(V_H)$  for irregular galaxies is roughly equivalent to ( $\approx 0.3$ ), and the ratio of the rotational velocity of the Milky Way to the rotation velocity of irregular galaxies is roughly equivalent to ( $\approx 0.4$ ), which means that irregular galaxies have neither a bulge nuclear nor any trace structure of spiral arms and discs.

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#### References

- P.H. Karttunen, Fundamental Astronomy, Springer Heidelberg, New York Dordrecht, London, 2016.
- [2] M.R. Sultanova, Automatic Approach to Mmorphological Classification of Galaxies with Analaysis of Galaxy Populations in Clusters, Doctor Thesis, University of North Dakota, Grand Forks, North Dakota, 2018.
- [3] M. Povíć, Development in astronomy in Ethiopia and East-Africa through nuclear activity ingalaxies, Science 1 (2020) 1–5.
- [4] M.N. Al Najm, Y.E. Rashed, H.H. AL-Dahlaky, Studying the flux density of bright active galaxies at different spectral bands, Science 16 (2019) 230–236.
- [5] Y. Sofue, Rotation and mass in the Milky Wayand spiral galaxies, Publ. Astronom. Soc. Jpn. 1 (2016) 1–34.
- [6] H. Parvathy, Rotation Curves of Galaxies, Maraimalai Campus, Guindy, MastersThesis, Submitted to Indian Institute of Technology Madras, 2015.
- [7] T.-Y. Cheng, C.-J. Conselice, A.-A. Salamanca, N.-L. Bluck, W.-G. Hartley, J. Annis, D. Brooks, P. Doel, J.-G. Bellido, D.-J. James, K. Kuehn, N. Kuropatkin, M. Smith, F. Sobreira, G. Tarle, Optimising automatic morphological classification ofGalaxies with machine learning and deep learning usingDark energy survey imaging, Aastro-ph. 1 (2020) 24.
- [8] K.L. Sarah, The Cosmic Evolution of Star-Forming Galaxies, Doctor Thesis, Natural Sciences submitted Combined Faculties of the Natural Sciences and Mathematics of the Ruperto-Carola-University of Heidelberg, Germany, 2019, p. 2.
- [9] M. Das, S. Mcgaugh, R. Ianjamasimanana, K.-S. Dwarakanath, Shield: neutral gas kinematics and dynamics, Astrophysical 6 (2016) 53.
- [10] M. Das, S. Mcgaugh, R. Ianjamasimanana, K.-S. Dwarakanath, J. Schombert, Tracing the dynamical mass in galaxy disks using HI velocity dispersion and its implications for the dark matter distribution in galaxies, Astrophys. J. 1 (2019) 13.
- [11] R. Swaters, M. Balcells, The Westerbork HI survey of spiral and irregular galaxies, Astron. Astrophys. 1 (2002) 1–18.
- [12] R. Rekola, Distance determinations, to nearby galaxies, Doctoral dissertation, Finland, Turku, 2004.
- [13] E. Rashed, M.N. Al Najm, H.H. Al Dahlaki, Spectral multiavelength properties of a RBSC- NVSS observation for a sample of active galaxies, Sciences 9 (2018) 15729–15740.
- [14] M.A. Najm, Studying the atomic and molecular hydrogen mass (MHI, MH2) properties of the extragalactic spectra, Science 61 (2020) 233-1243.
- [15] Y. Sofue, Invited Review the GALEX in the Milky Way and Spiral Galaxies, vol. 69, 2017, pp. 1–35.
- [16] U. Dudzevici, I. Smail, A.-M. Swinbank, C.-F. Lim, W.-H. Wang, J.-M. Simpson, C.-C. Chen, D. Clements, H. Dannerbauer, L.-C. Ho, H.-S. Hwang, C.-H. Lee, D. Scott,

H. Shim, R. Shirley, Y.- Toba, Tracing the evolution of dustobscured activity using sub-millimetre galaxy populations from STUDIES and AS2UDS, MNRAS 1 (2020) 20.

- [17] G.-L. Hoffman, E.-E. Salpeter, B. Farhat, T. Roos, H. Williams, G. Helou, Arecibo hi mapping of a large sample of dwarf irregular galaxies, Astrophysical 105 (1996) 30.
- [18] E. Gregersen, The milky way and beyond, in: Association with Britannica Educational Publishing, Rosen Educational Services, 2010.
- [19] J. Fischer, N.-P. Abel, E.-G. Alfonso, C.-C. Dudley, S. Satyapal, P.-A. van Hoof, A far-infrared spectral sequence of galaxies: trends and models, Astrophysical 795 (117) (2014) 24.
- [20] J.R. Brauher, D.A. Dale, G. Helou, Compendium of far-infrared line and continuum emission for 227 galaxies observed by the infrared space observatory, Science 1 (2008) 1–95.

- [21] F. Casoli, J. Dickey, I. Kazes, A. Boselli, P. Gavazzi, K. Baumgardt, H1, H2 and star formation in galaxies in the region of the coma supercluster, Astron. Astrophys. 309 (1996) 43–58.
- [22] Z. Butcher, S. Schneider, W. van Driel, M.-D. Lehnert, Bivariate luminosity-Hi mass distribution function of galaxies based on the NIBLES survey, A&A 619 (2018) 1–14.
- [23] A. Sipols, A. Pavlovich, Dark Matter Dogma: A Study of 214 Galaxies, Galaxies 8 (2018) 1–32.
- [25] T.C. Licquia, J.A. Newman, J. Brinchmann, Unveiling the milky way: a new technique for determining the optical color and luminosity of our galaxy, Astrophys. J. 809 (2015) 1–19.
- [26] D. hovmann, D. Lemeke, C. Thum, Surface brightness of the central region of milky way at 2.4 and 3.4 mm, Astron. Astrophys. 57 (1977) 111–114.