CLTG EMERGENT AND FISSION CLASSIFICATIONS OF MULTI-OBJECT SYSTEMS FOR MORPHOLOGICAL TAXONOMY - PART II

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Autonomous Citizen Science Alliance

Abstract

Part I of Emergent Theory elaborated many object family types and our naming shortcuts. This group was too large to include as one publication.

As outlined in Part I of this series there are many types of paired- and multi-object systems which exemplify emergent and fission systems. This report describes the “cutout” families of objects. Along with this collection we include a data-driven method of classification members of the family. We also created an *ad hoc* description of our ‘cutout’ pattern formed by paired family objects.

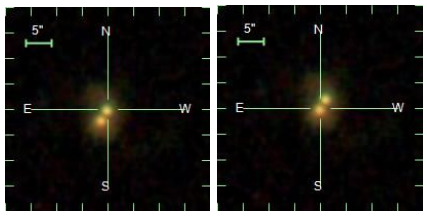
SEE CUTOUT DEFINITIONS … EXCELLENT RESOURCE

Our discussion of paired “cutout” objects starts with a sequential redshift collection to highlight the morphology and ages of the set. The exemplar pair is relatively ‘local’ and they (9 object family z=0.020-0.022) are a very early pair. Our emphasis is on the long term stability of these pairs and their emergent contributions to the family numbers and cltg.

This family might also be a GV fission outcome, see first publication.

Below the early pair is a late pair with a cltg that already looks like the early pair but at the other end of our redshift curve.

A cautionary grouping is included to remind us that some pairs may overlap but not be cutouts. Another member of this family, based on the redshift, raises the possibility that the cutout is doubtful.



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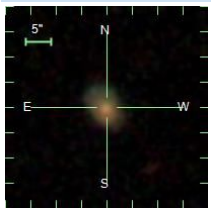

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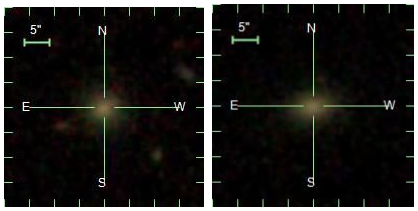

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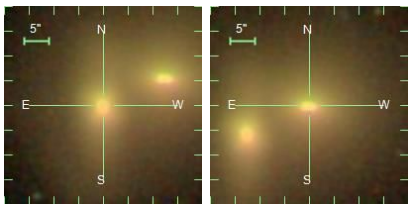

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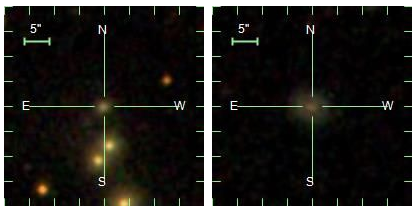

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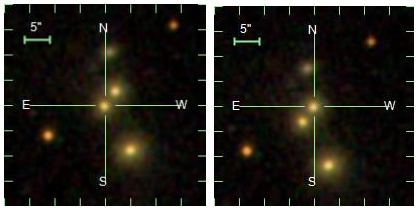

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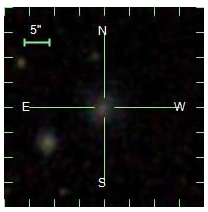
CUTOUT DEFINITIONS …

HIGH AND LOW BOUNDS IN SAME FAMILY

https://www.zooniverse.org/projects/zookeeper/galaxy-zoo/talk/1267/651825 .065 group



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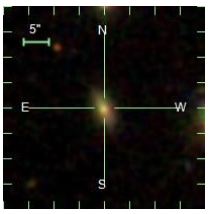

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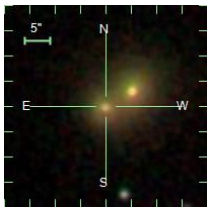

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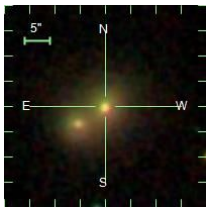

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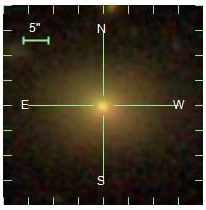

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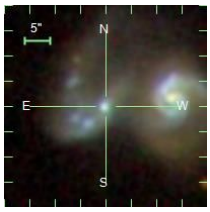
HIGH AND LOW BOUNDS IN SAME FAMILY

There are many cutout families in this data and many close pairs lacking one redshift. Here, we can juxtapose this example with known pairs having redshifts. This pair and comparisons takes into account many of the ways cutouts can be classified in this paradigm.



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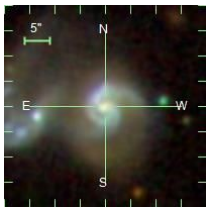

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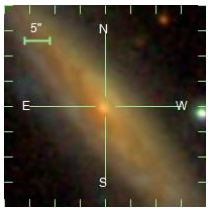

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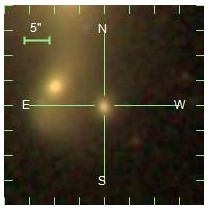

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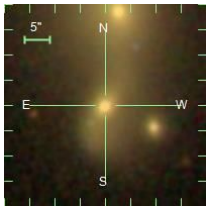

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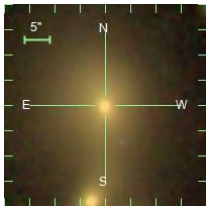

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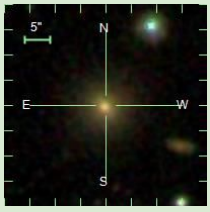

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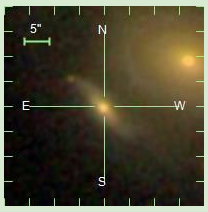

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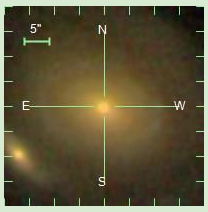

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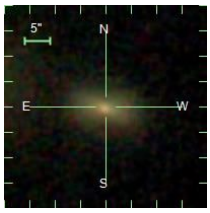
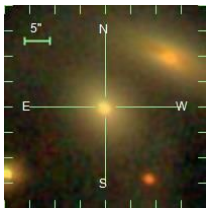
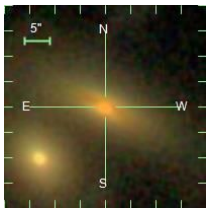
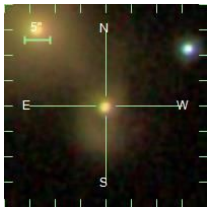
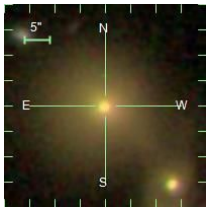
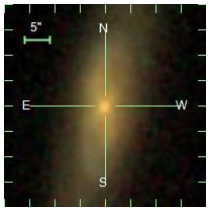
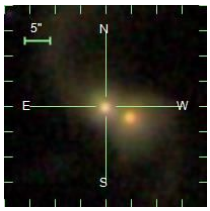
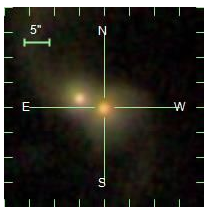
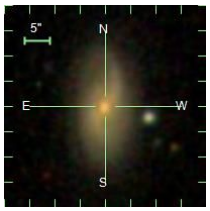
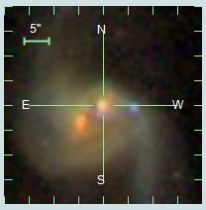
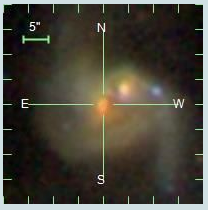
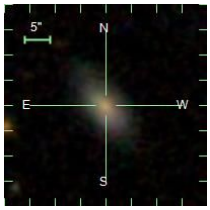
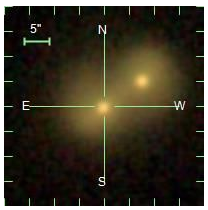
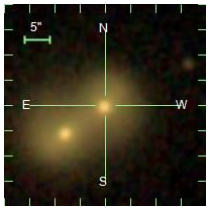
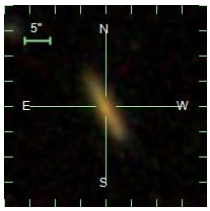
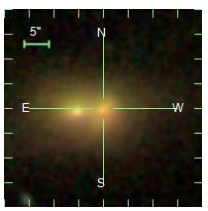
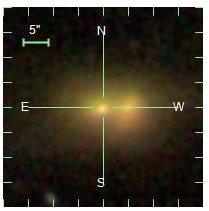
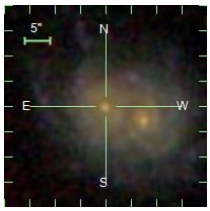
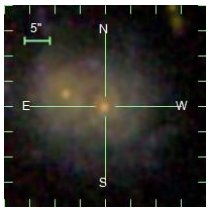
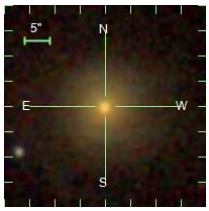
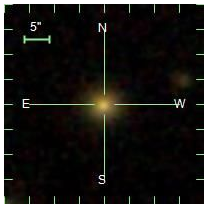
	16.5		14.5		14.5	03 .036 .037
	16.2		14.4		14.3	04 .043 .044s
	17.1		15.5		15.5	05 .047s .051
	17.0		14.5		14.0	06 .049 .050 zunk
	16.8		15.2		15.5	07 .061 .062s
	17.2		15.4		15.2	08 .060s
	16.1		15.6		15.2	09 .068s



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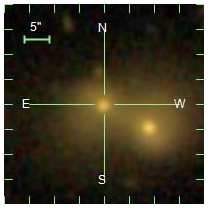

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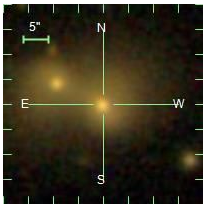

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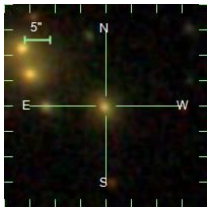

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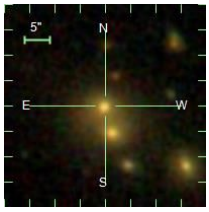

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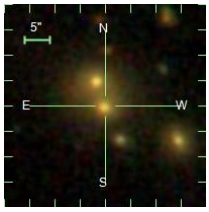

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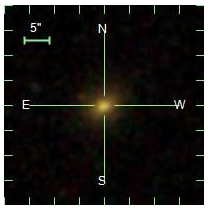

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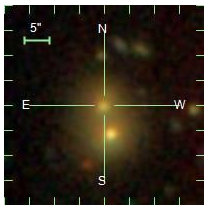

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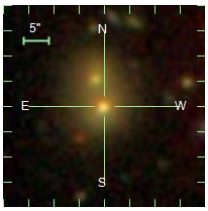

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03 1237680120637030478 1237680120637030477 1237680120637030481
04 1237679254674276526 1237679254674276416 1237679254674276417
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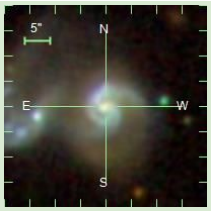
12 1237648722832982102 1237648722832982104 1237648722832982256
#02 supplemental 1237661949734486165 1237661949734486166 1237661949734420776

Synopsis of introductory objects …

#01 unlike the former pairs (#08 #09) which represent late early and middle type objects, this set represents an early P1 and C1 sharing a dusty legacy or a fission with diffuse dustory of both early objects. It is interesting that these two objects look like late types and the new mass is not sufficient to promote the object to a later type category.



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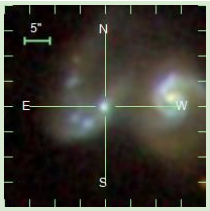


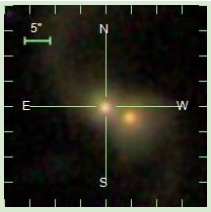
15.56 .022

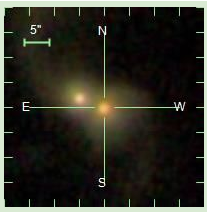
1237680503430119620 1237680503430119621

#02 like the #06 pair however, we seem to have an ideal family of P1, C1 and a cltg. These morphologies also look like a familiar trend with the prospective C1 types sharing a S or SB morphological modality.

#04 here ike #02 where these morphologies resemble the prospective C1 type having a S or SB modality.

#05 is like the #06 pair however, we seem to have a trio of C1s with an adjoining cltg. The trio share spectral DNA with the cltg. These morphologies also look like a familiar constituent family trend.



17.1


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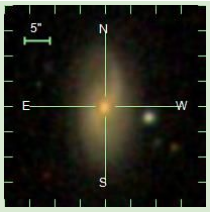

15.5 .047s .051

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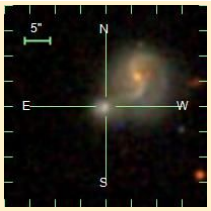

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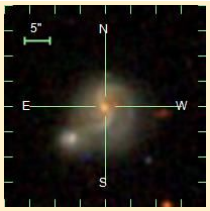

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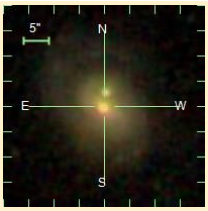
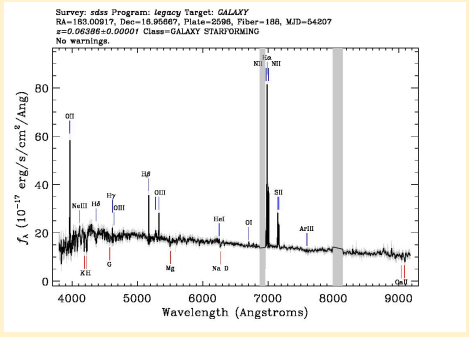
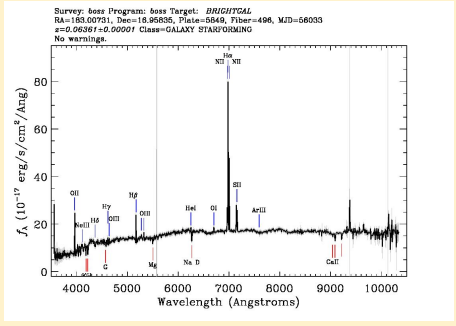


15.15 .063

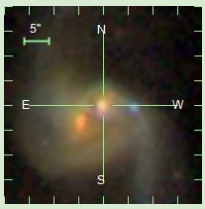
1237668623548481669 1237668623548481668 1237668589722206290





17.51 15.87 DNA

#06 (-9148) may have a youthful spectral glow from its emergent growth spurt. It is also a good “Green Valley” (see Schwanski et al., in first publication) emergent fission example. Difficult to say if the C1 morphology is affected by the presumptive cltg although the latter object has a thin dust halo. This set looks like an early P1 with a younger C1 clone sharing a dust history and suggesting the cltg is closer to the viewer.



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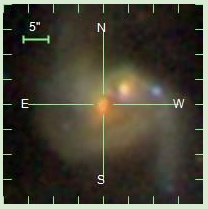
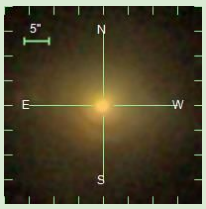
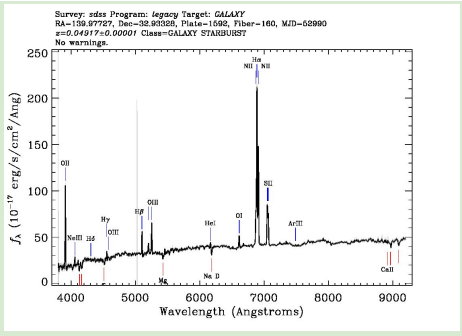
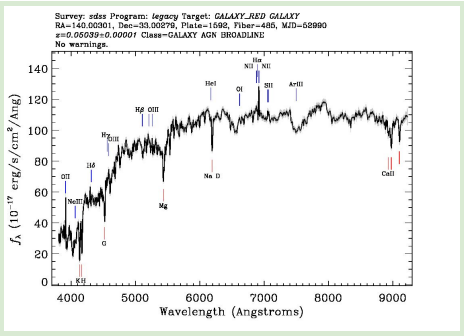


14.57


14.04 .049 .050

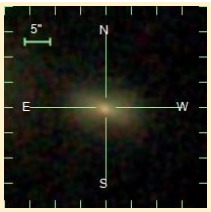




14.57 3M sbst wide H1 RS “SB? HII” ; 14.04 agn broadline RS “S0^-, S0-, E/S0”

1237661383306969147 1237661383306969148 1237661383306969336

#06 may evolve to #03, here, phase where the object gap has increased to where objects can more easily be classified.



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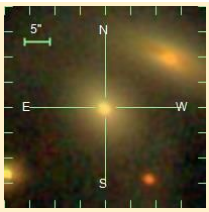

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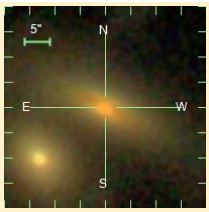
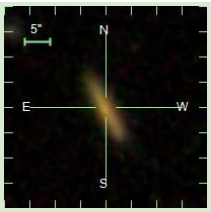


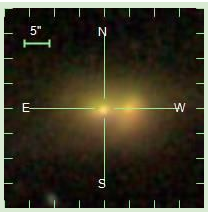
14.5 .036 .037

Unlike the former pair which represents early and middle types, this set represents an early P1 and C1 sharing a dust history. Fission with dustory of the larger object produced a smooth extended halo dustlane(s).

#07 is very similar to #10.

#08 A classical overlap of emergent, late, early types - GVs?



17.2


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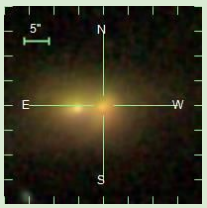
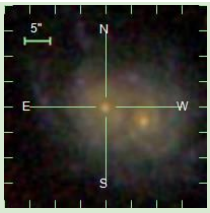


15.4 .060s

1237648720685564122 1237648720685564032 1237648720685564031

#09 is a replete pair with a clone modality and an emergent process. We may have an overlapping GV fission (clones) producing early, middle type objects rather than early and late members. (see #1 and #6)



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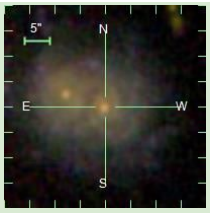
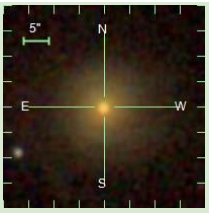


15.66


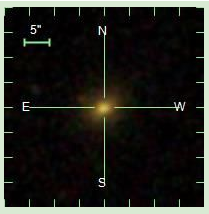
15.22 .068 .069
1237679433449668640 1237679433449668639 1237679433449865340

#10 is like the #02 (and the supplemental objects) pair where, we seem to have an ideal family of P1, C1 and a cltg. These morphologies also look like a familiar trend with the prospective C1 types (often ‘mini-mes’ of P1) sharing a S or SB morphological modality. The core to core gap is 10” for both pairs. There is no present way to unequivocally state where an overlap delimits an “emergent” or “fission” state. We generally use redshift and the visual ‘overlap’ to semantically disambiguate the transition state.

#11 cutout pair objects gap is similar to #12 and the families other data is similar. These higher redshift object ‘cutout’ pairs morphologies also look like a familiar constituent family trend.

“cutout”

#12 has a cutout pair object gap matching #11 despite a significant redshift difference. #12 and #10 are so similar they can be easily mistaken at a glance.



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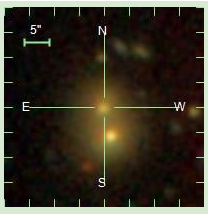
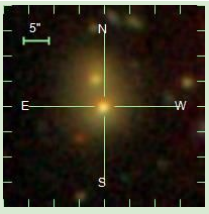
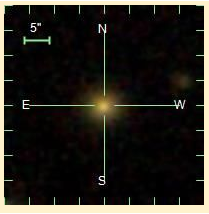


16.4


16.1 .115 .117 .118
12 1237648722832982102 1237648722832982104 1237648722832982256



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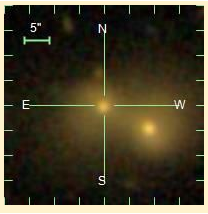

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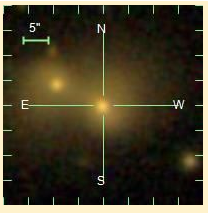

15.4 .085 .086s

Throughout this discussion we are stressing that these groupings ARE NOT random and that a mountain of negative “merger” publications involving “interactions” have unequivocally supported the emergent process theory.

https://aas.org/policies/anti-harassment-policy-aas-division-meetings-activities
“

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encourages the free expression and exchange of scientific ideas.

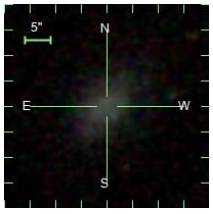
In pursuit of that ideal, the AAS is dedicated to the philosophy of equality of opportunity and treatment for all members, regardless of gender, gender identity or expression, race, color, national or ethnic origin, religion or religious belief, age, marital status, sexual orientation, disabilities, veteran status, or any other reason not related to scientific merit. Harassment, sexual or otherwise, is a form of misconduct that undermines the integrity of Society meetings. Violators of this policy will be subject to discipline.

”

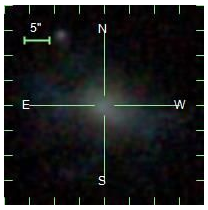
Violation of AAS harassment policy (there are many more at several sites) …
It's just someone's private project. It has no scientific value whatsoever.
Please ignore it. Happy Hunting ! ;-)
by ElisabethB MODERATOR 5 years ago
(abuses and harassment continue to this day!)
https://talk.galaxyzoo.org/?_ga=2.33028279.847861735.1516844335-481536946.1510480081#/subjects/AGZ00055pr

Solo / Soli

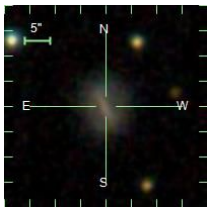
Our soli examples show small (1-3 member) object sets and contrast them with larger (18 member) family groups with cltgs while demonstrating that both have similar morphology and data-driven properties. Our perspective arbitrarily uses DECaLS viewer format zoomed out with with the “SDSS Spectra” option displaying redshifts.
Here are two isolated solo objects that are emerging without any obvious companions. These objects challenge the theorists to fill-in-the-blanks concerning what contributes to mass formation. [By our loose, linear, calculations extending back 14 billion years, the bulk mass of approximately 2 average-sized galaxies appears every day. This would loosely account for the (conservatively) estimated formation of two trillion galaxies.]



17.35 17.15 .014 1237671764785365276 SOLO



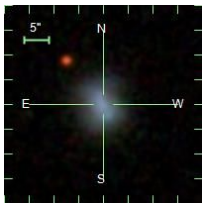
16.65 16.49 .014235 1237650371560013940 SOLO



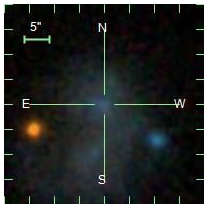
17.40 17.11 .046779 1237650760250294503 SOLO

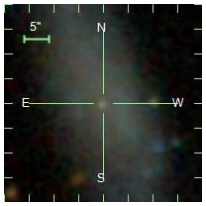
This fission overlap shows an agn broadline late, early type object underlapping a late dusty ‘minime’ object. There is a middle type third family object that rounds off this soli.

==========begin solo / soli ==========

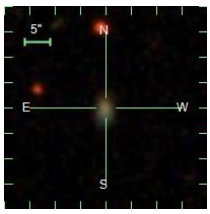


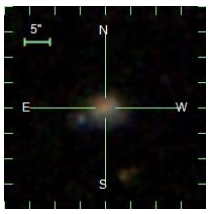
16.63 .017 1237666339725836420 3M sfing



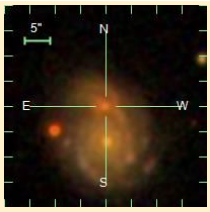
17.59 2M sbst 

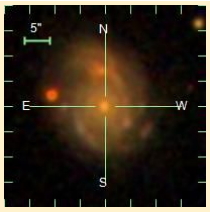
15.04 .004 GAP 1.675’
1237650762397253702 1237650762397253726



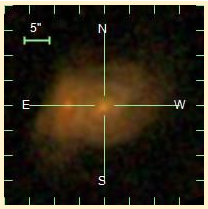
18.59 

18.00 .149 .150 3M sbsts DNAs
1237678617432162525 1237660027202699456

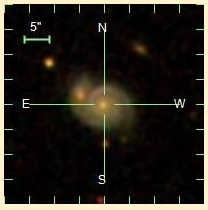


17.23 

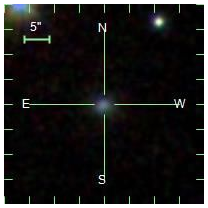
15.74 .06 soli
1237671256370512277 1237671256370512275 GAP 7.283”

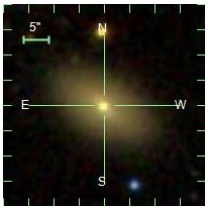


16.23 15.56 zunk 1237678894436974910 GAP 7.123”



16.75 16.31 zunk 1237680529202283116 GAP 5.053”



18.52 

15.08 .034 soli
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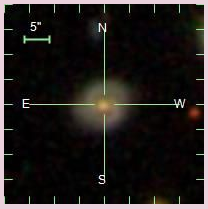
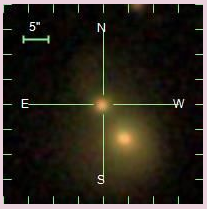
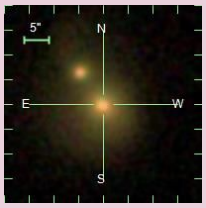


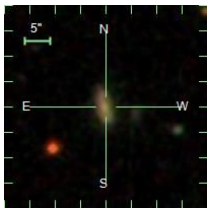
16.61 

17.49 

15.87 .077
1237648722319507630 1237648705127514250 1237648705127514249

The spectra can be more insightful than any text.

.116 .117 **soli** series …



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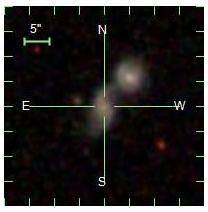

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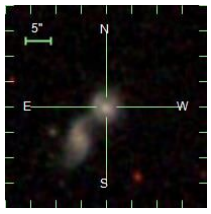
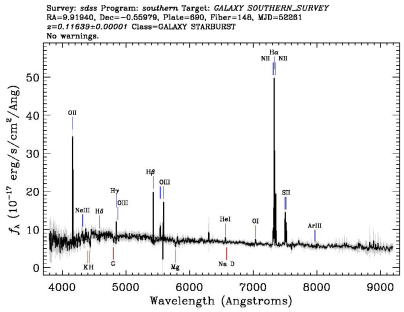
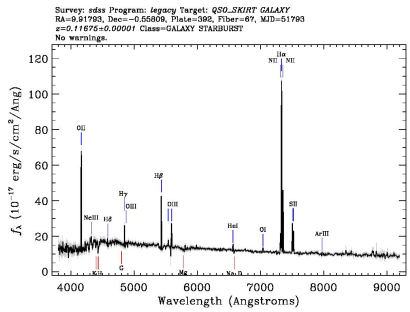
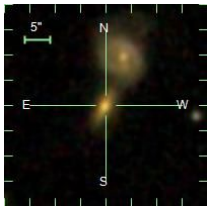


17.57 .116 1237663783127744740 1237656971300700298 1237656971300700297





17.8 17.5 DNA



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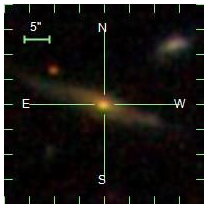

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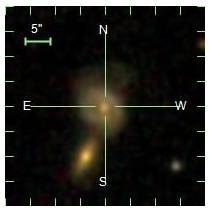

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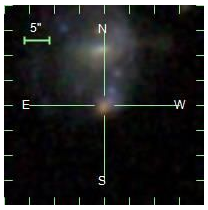

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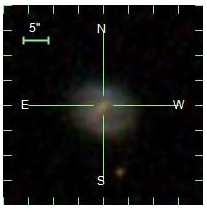

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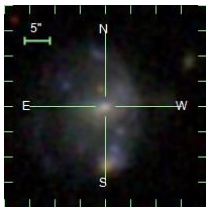

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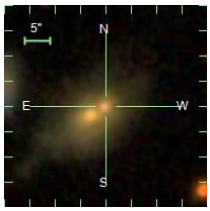

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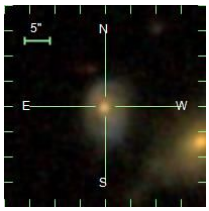

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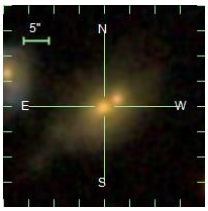
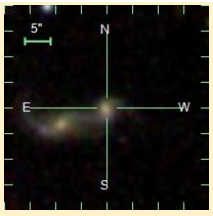


15.54 .100 .101 1237648721248977206 1237648721248977207 1237648721248977205

And duplicate family type (either/both soli?) ..



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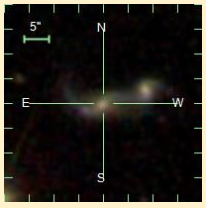

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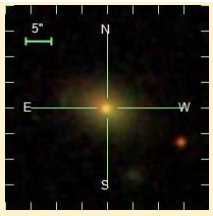

16.41 .092

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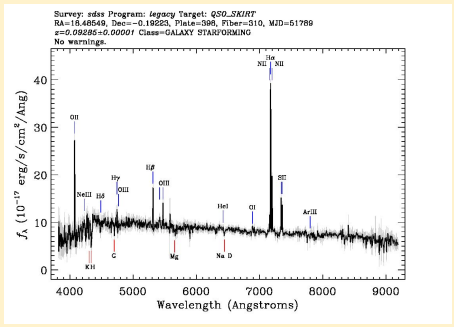
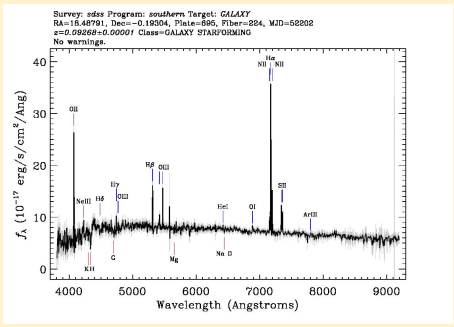
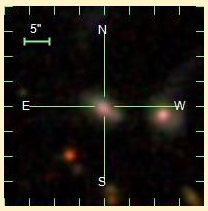




18.3 17.4

soli?



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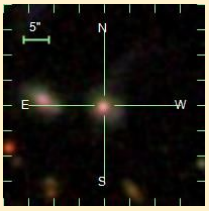

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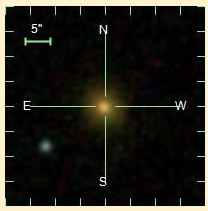

17.33 .137 .138

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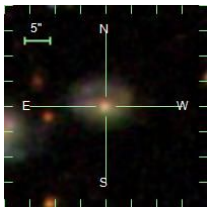

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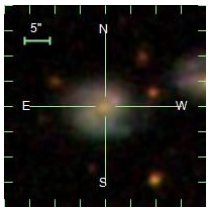

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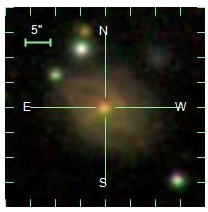

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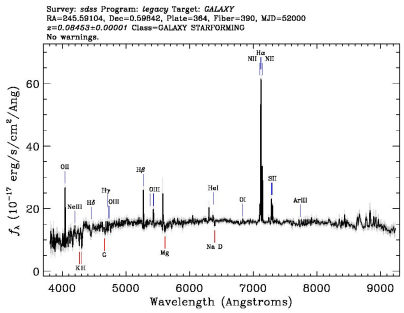
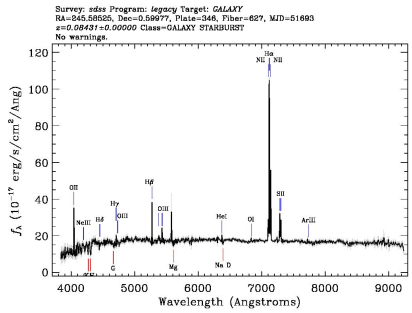
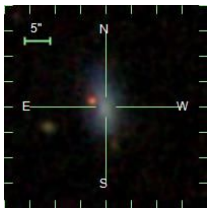




16.6 16.7 DNA

==========end solo / soli ==========

========== begin DNA ==========



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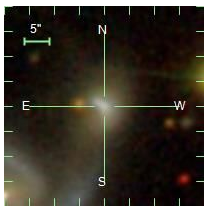

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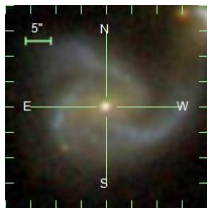

14.44 .028

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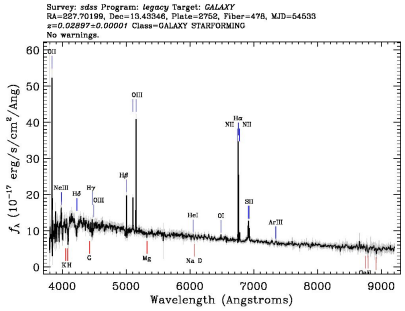
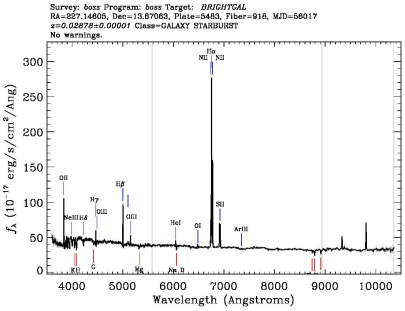
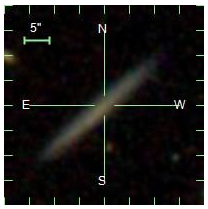




17.34 14.44 DNA soli



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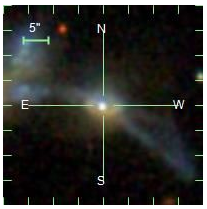

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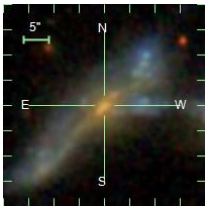

15.53 .025 .026

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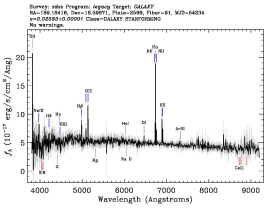

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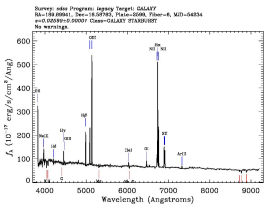

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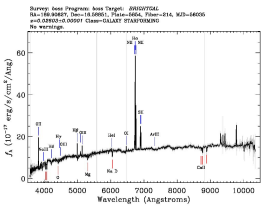

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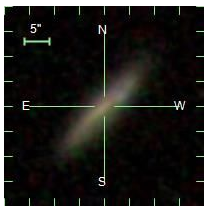

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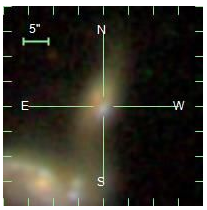

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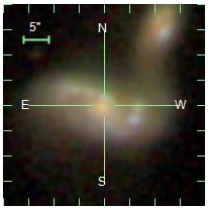

14.47 .033 .034

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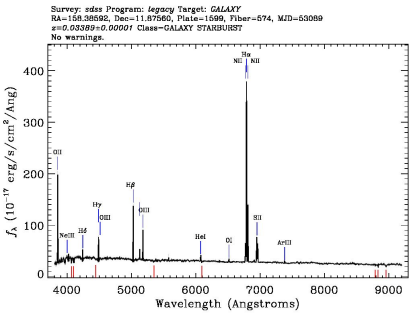
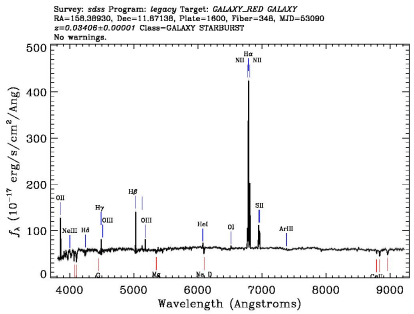
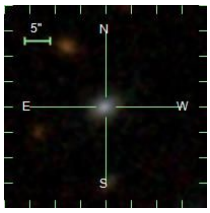




16.00 14.47 DNA



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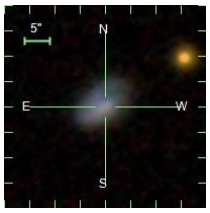

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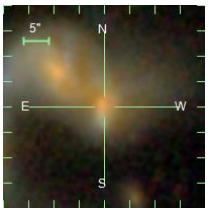

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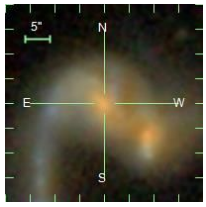

14.39 .039

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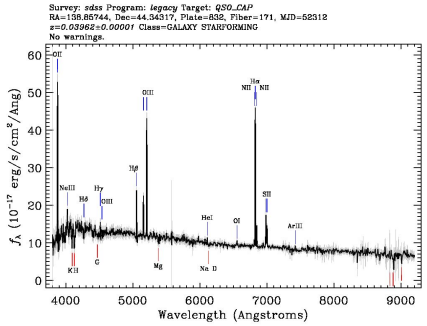

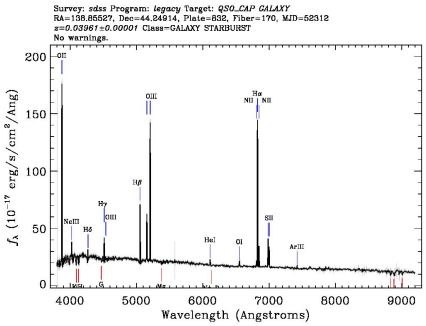

18.10 17.01 DNA

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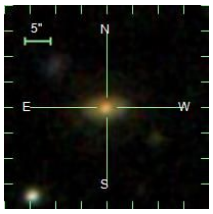

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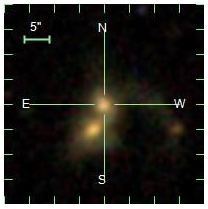

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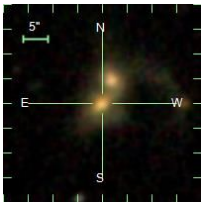

16.84 .103 .104

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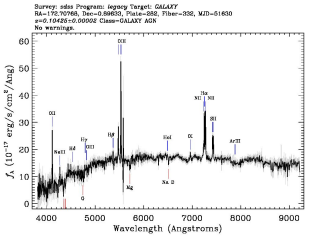
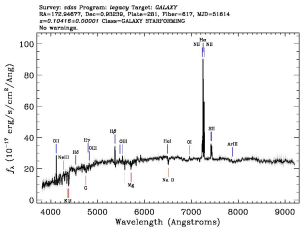
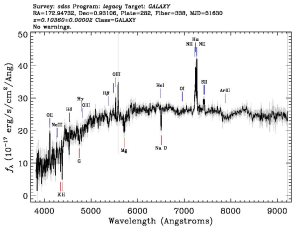
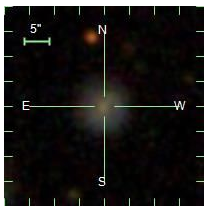






17.1 17.0 16.8



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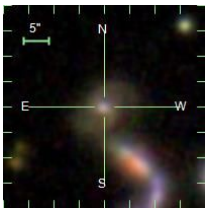

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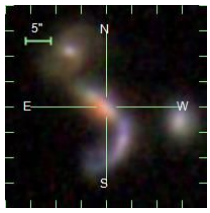

16.04 .068 .069

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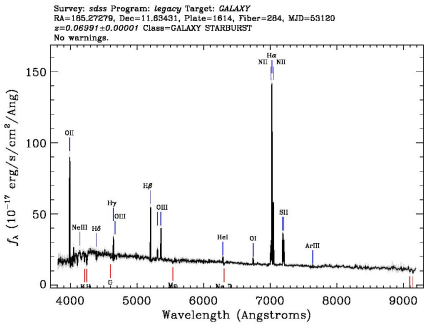
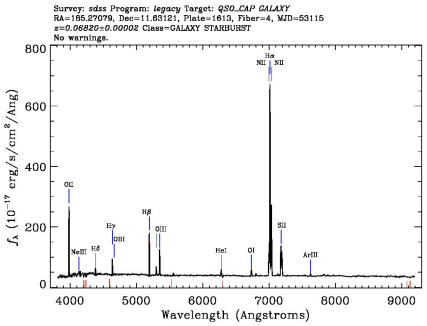
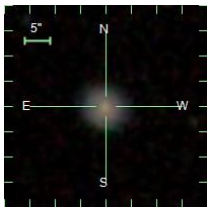




16.94 16.04



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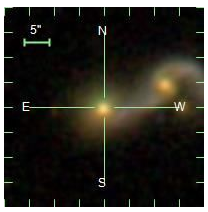

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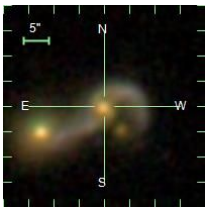

15.69 .071 .072

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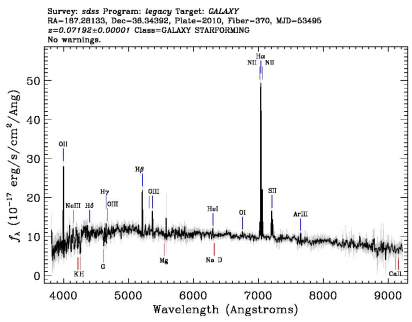
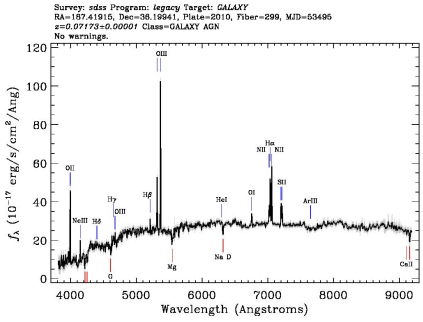
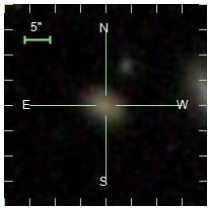




17.22 15.69 DNA



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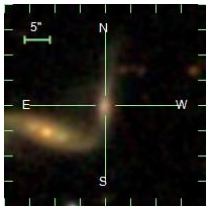

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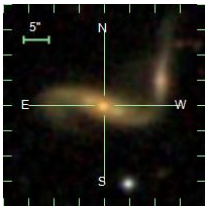

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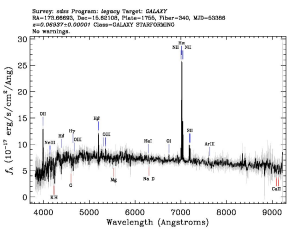
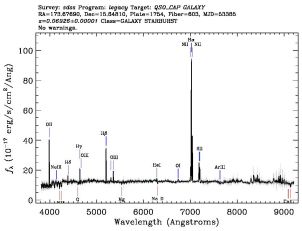
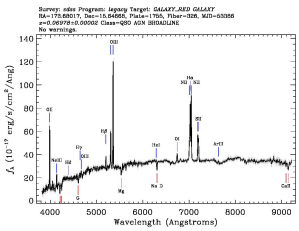
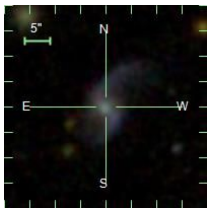






17.70 17.36

15.79



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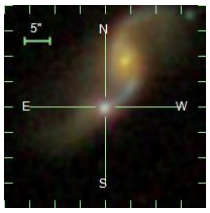

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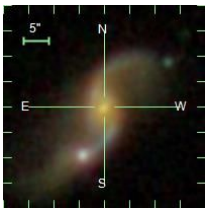

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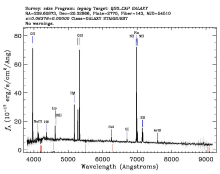
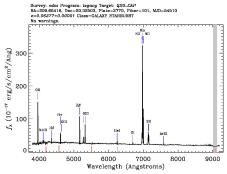
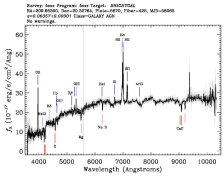
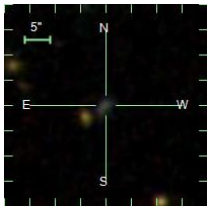




17.41 17.02 15.55



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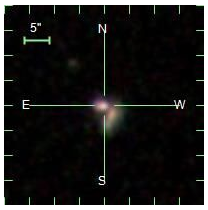

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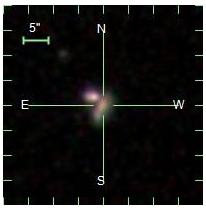

18.12 .130 .131

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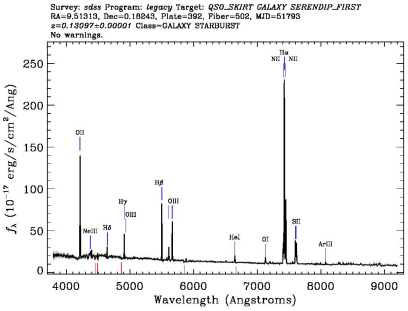
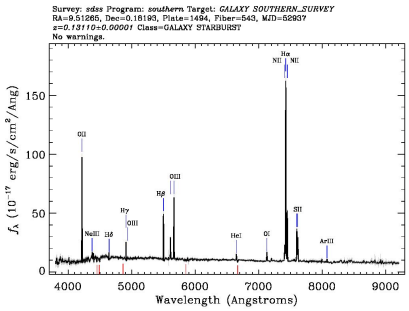
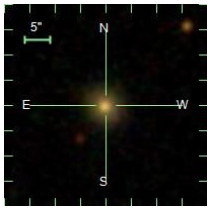




18.2 18.1 3M sbst DNA

Cutout CW AND CCW …



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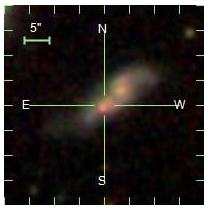

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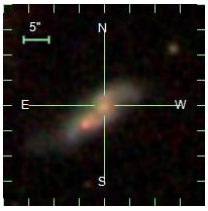

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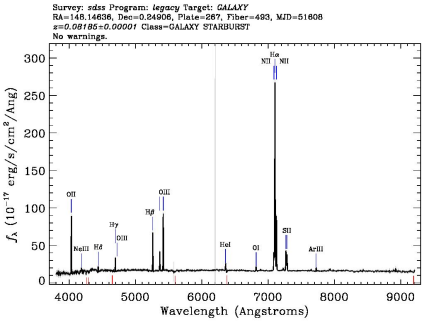
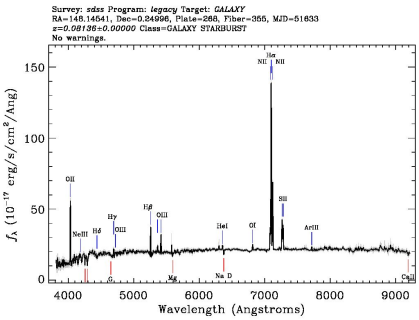
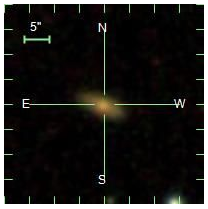




17.0 16.7 DNA



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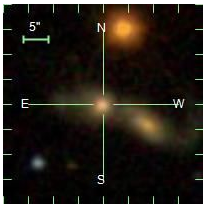

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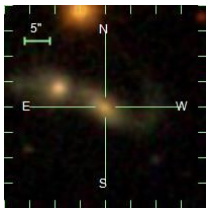

17.08 .137.138 .139

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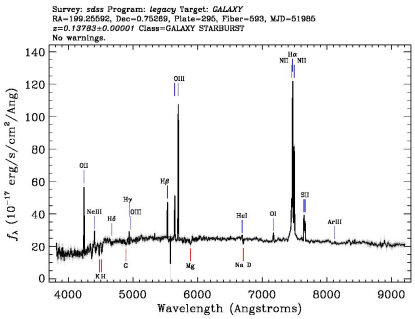
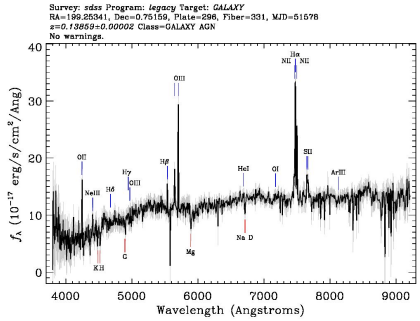
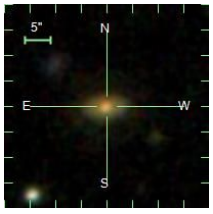




17.1 17.0



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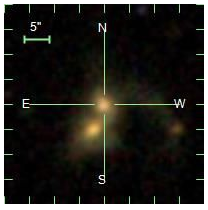

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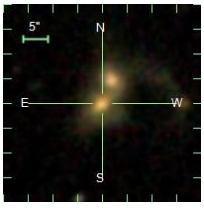

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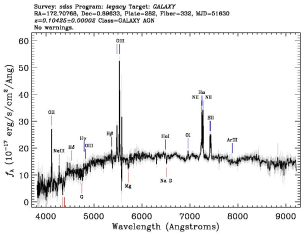
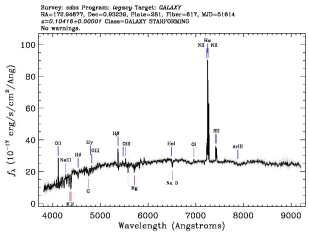
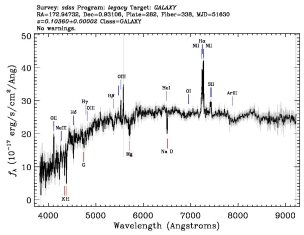
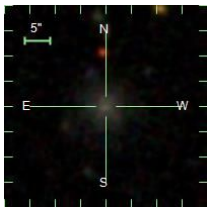






17.1 17.0 16.8



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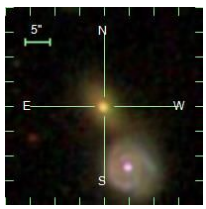

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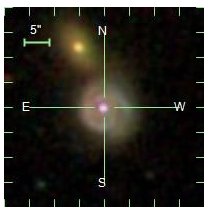

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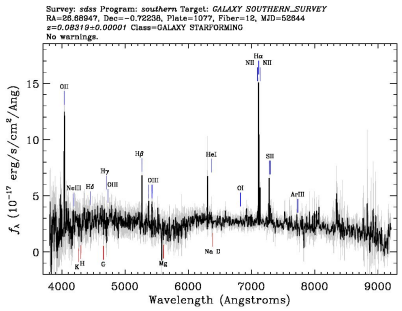
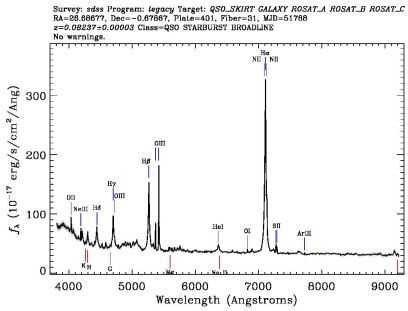
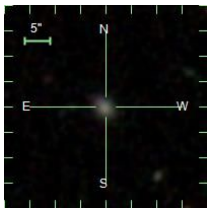




18.2 15.6



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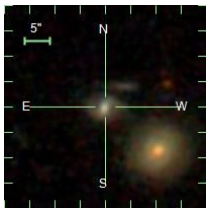

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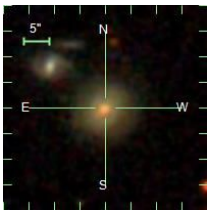

16.10 .058

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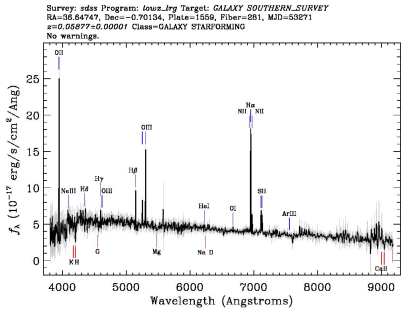
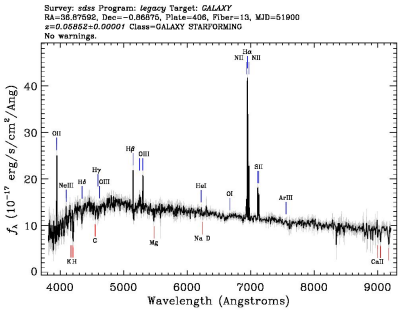
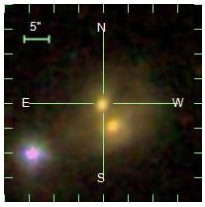




18.98 17.67 DNA



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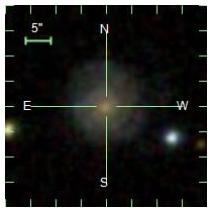

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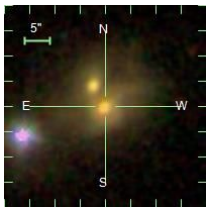

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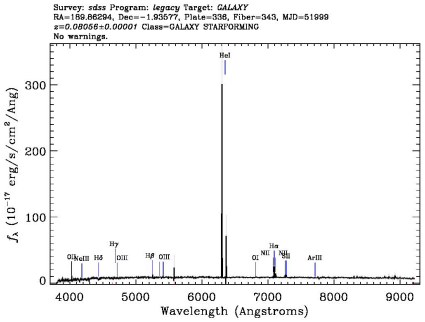
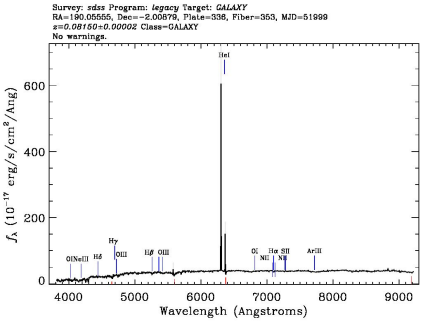
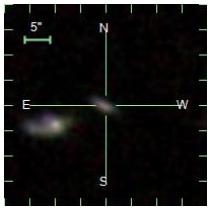




16.82 16.79 DNA



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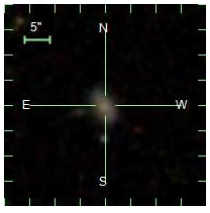

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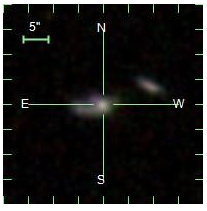

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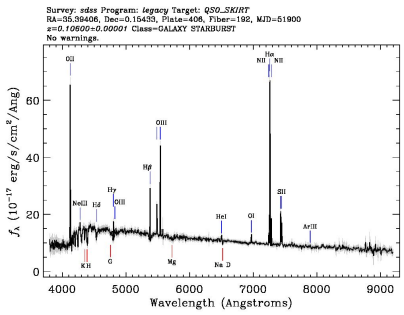

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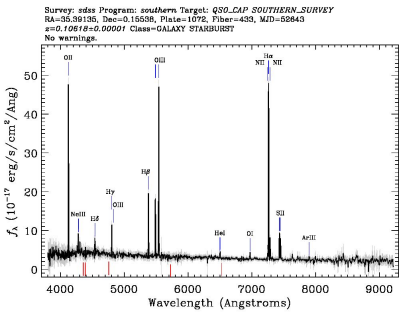
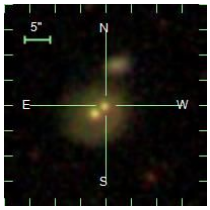


19.50 3M sbsts

========== end DNA ==========

========== start cutout in serial ==========



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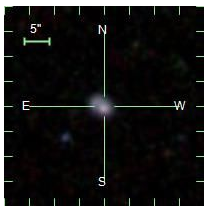

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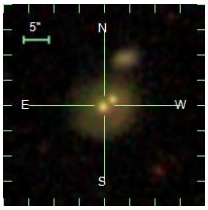

16.70 .083

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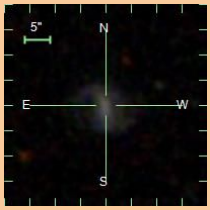
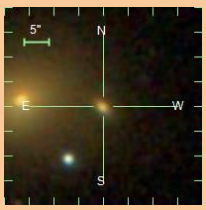
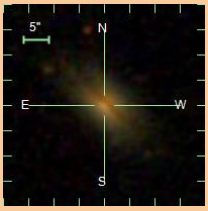


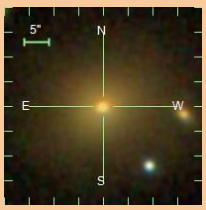
18.32 18.02 .078528 1237678617427771906 5.482’ cltg



17.70

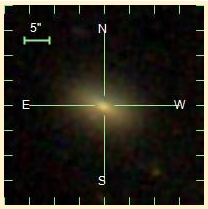


17.00

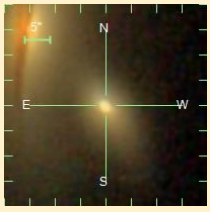


14.61 .076 .077 .078

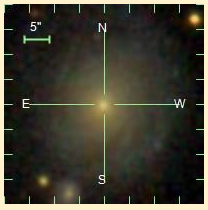
1237678617427837060 1237678617427771747 1237678617427837057



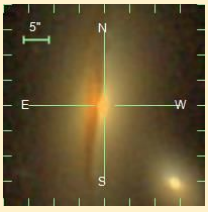
15.92 15.57 .024535 1237678617435963411 54.4” cltg



14.83



14.58

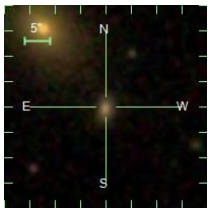


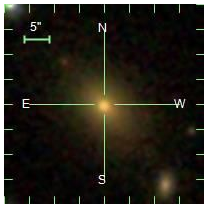
13.30 .024

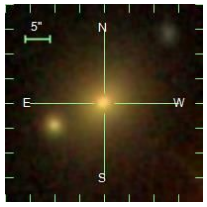
1237678617435963409 1237678617435898005 1237678617435963410

========== end cutout in serial ==========

========== start cutout early ==========

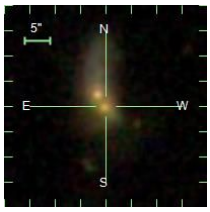


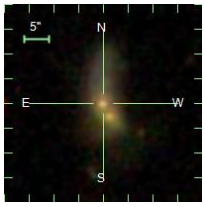
18.87


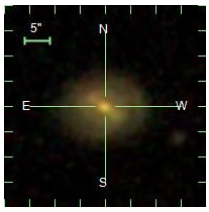
16.07


15.08 .083

1237674603753504846 1237674603753504845 1237671266032681004

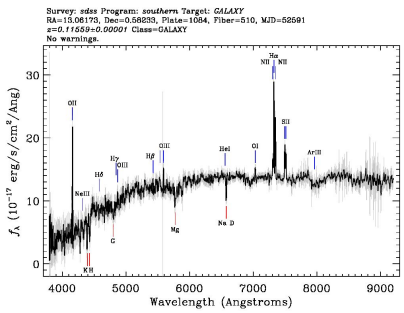


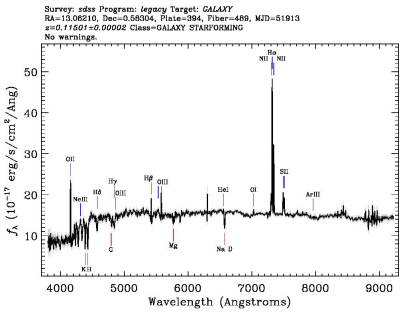
17.38


16.79


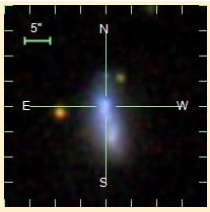
16.02 .114 .115

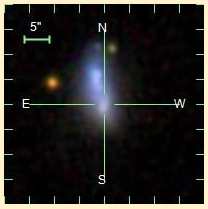
1237663784739995887 1237663784739995886 1237663784739995949

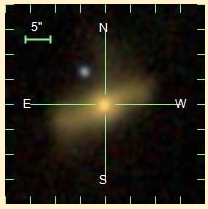




17.38 16.79 DNA

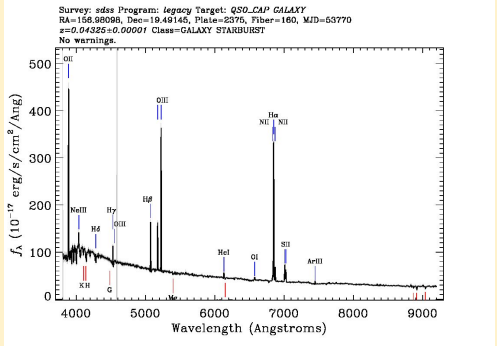


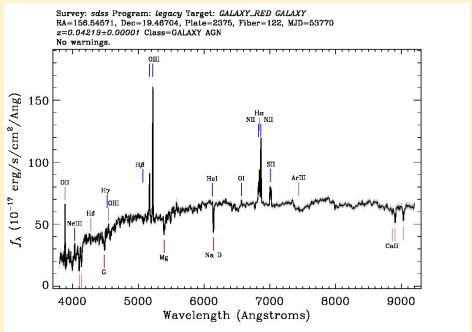
16.24


16.46


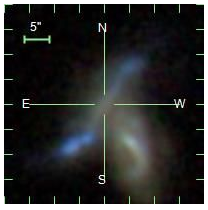
15.37 .041 .042 .043

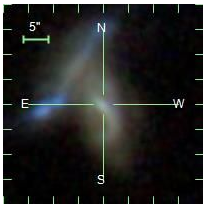
1237667734497329239 1237667734497329240 1237667734497198213

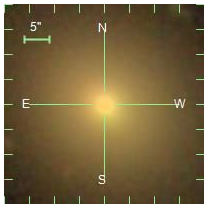




16.24 15.37 DNA

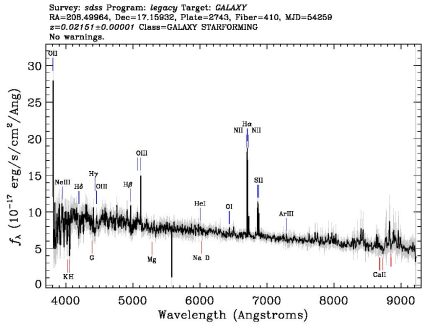


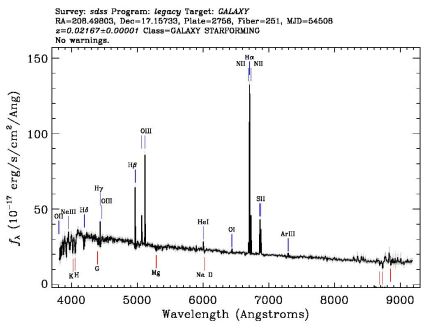
16.51


16.02


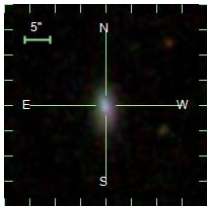
12.67 .021 .022

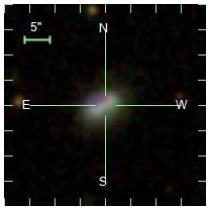
1237668350817468499 1237668350817468497 1237668315919876168

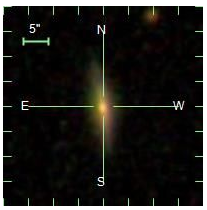




16.51 16.02 DNA

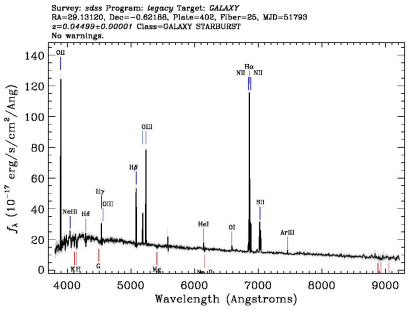


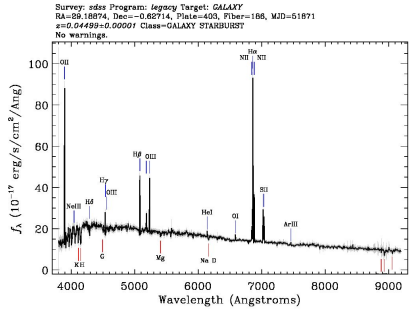
17.60


17.00


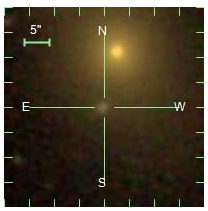
16.69 .044 .045

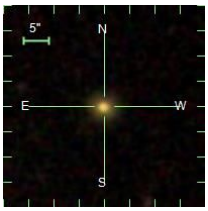
1237666407381401798 1237666407381467247 1237666407381467214

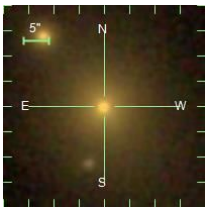




17.6 17.0 DNA

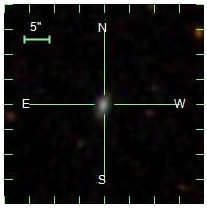


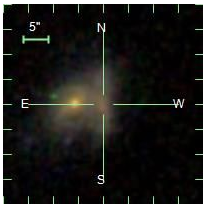
20.77


17.73


14.44 .078 .079 .080

1237663784744255607 1237663784744255782 1237663784744255599





18.94 17.72 16.88 16.33
1237663783125516485 1237657190370377822 1237663783662583938
1237657190370377820 .069 .070

========== end cutout early ==========

========== begin serial Rs ==========

17.48 17.45 15.95 .046
1237654604786303206 1237654604786303157 1237654604786303156

17.48 17.45 DNA

18.95 17.46 15.29 .063 .064
1237663204920328509 1237663204920262777 1237663204920328291

18.95 17.46 DNA

18.12 17.87 13.43 .043 .044
1237663784742486457 1237666339726819672 1237663784742486039

17.11 15.71 14.55 .043 .044 .045
1237666339726819607 1237666339726819618 1237666339726819377

16.99 15.24 14.59 .055
1237668496319905931 1237668496319971436 1237668496319971385

17.02 14.24 broadline 14.93 .061
1237671140405608700 1237671140405674299 1237671140405674118

16.48 15.74 15.55 .043 .044
1237652899690971241 1237653500433465382 1237652899154493509

14.14 13.62 .044
1237653500433531045 1237653500433465381

========== end serial Rs ==========

====== begin cutout early ========================

18.10 16.91 15.71 .058 .059
1237657071158624408 1237657071158624407 1237657071158558867

Family with cutout and P1 cltg pairs.

16.77 16.75 16.25 .110 .111
1237657189836521714 1237657189836521715 1237657189836521745

17.95 16.16 16.28 .102 .103
1237650762389258409 1237650762389258408 1237671126977544346

17.74 17.48 17.40 .134 .135
1237654668666339494 1237654668666339493 1237654668666339548

18.88 18.81 17.57 .132
1237648704592609624 1237648704592609623 1237648721247731906

====== end cutout early ========================

========= begin late cutout ======================

17.16 16.78 .044779 1237666338114044123

15.99 15.71 14.00 .044
1237666338114109572 1237666338114109573 1237666338114109571

16.61 14.97 14.57 .036
1237668270831960264 1237668297144795285 1237668297144795284

17.03 16.23 14.84 .067 .068
1237671261208903940 1237671261208969424 1237671261209100455

16.29 14.93 14.29 .026 .027
1237667915416731932 1237668293912690932 1237667915416731720

15.98 14.97 14.65 .040 .041
1237660583905656946 1237660583905657083 1237660583905656945

18.44 17.16 15.35 .109 .111

1237657189836456012 1237657189836456010 1237657189836456008

18.56 17.42 16.86 .085 .086
1237666406846103656 1237680001451098319 1237666406846103656

========= end late cutout ======================

P1 *in situ* emergent?

30 (.108-.110) objects in this family

================== begin cutout early ========================

18.06 17.93 17.69 .130 .131
1237648720152232156 1237648720152232157 1237648720152232129

17.07 16.48 17.01 .084 .086
1237648704595558510 1237648704595558511 1237648704595624148

================== end cutout early ========================

================== begin late cutout ========================

17.92 16.89 16.78 .117 .118
1237674648853414114 1237674648853414113 1237674648853414112

18.07 17.70 17.61 133 .134
1237655499208327586 1237655499208327468 1237655499208327469

18.02 16.55 14.89 .050 .051
1237668298216636617 1237668298216636615 1237668298216636614

17.74 16.87 16.57 .101
1237664289927725195 1237664289927725165 1237664289927725166

18.95 16.96 15.69 .087
1237663783144915412 1237666300018098368 1237666300018098367

17.01 16.88 16.78 .100
1237664667360821318 1237664880491561116 1237664880491561117

16.41 15.24 14.74 .064 .065
1237667915957666100 1237667915957665835 1237667915957665832

17.64 17.64 16.79 .130 .131
1237667212112691792 1237667107423257384 1237667107423257382

17.49 15.94 15.15 .091 .093
1237656241705189589 1237656241705189556 1237656241705189555

17.01 16.73 16.43 .116 .117
1237667549268345003 1237667549268148435 1237667549268213959

17.40 17.11 16.64 .141 .142
1237667253990064660 1237667253453324694 1237667253453324693

18.18 16.17 14.767 .058 .059
1237657189834424544 1237663783126630491 1237657189834424494

16.55 16.34 15.82 .069 .070 .071
12376591322169346 74 12376591322169345 19 12376591322169345 20

17.08 16.49 15.50 .078 .080
12376664073815983 82 12376664073815983 83 12376664073815327 43

17.55 17.90 16.75 .128 .129
12376487212452414 97 12376487212452414 98 12376487212452415 44

17.48 16.99 16.86 .140
12376672126688953 18 12376672126688953 16 12376672126688953 47

17.54 17.06 16.60 .106 .107 .108
12376637165560136 65 12376637165560136 66 12376637165560137 03

17.09 16.01 14.04 .060 .061
12376652257012614 32 12376652257012613 95 12376652257012613 94

18.00 17.13 14.16 .058 .059
1237678617430196695 1237663785283551336 1237678617430196472

16.88 16.76 15.09 .079
1237662307810083173 1237662307810148631 1237662307810148630

16.00 15.72 14.01 .044
1237666338114109572 1237666338114109573 1237666338114109571

17.24 14.93 14.20 .028 .029
1237671123226722572 1237671123226722378 1237671123226722377

16.60 15.70 15.39 .062 .063
1237665549960151161 1237665532782772506 1237665532782772505

17.31 16.67 17.14 .093 .095 .096
1237649962997711165 1237652900775461183 1237652900775461182

15.73 14.67 14.53 .025 .026 .027
1237665129612050603 1237664336639623269 1237664336639623268

17.77 16.70 16.42 .113
1237666407919386742 1237666407919386631 1237666407919386630

18.32 18.85 17.09 .148 .149
1237648705129939093 1237648705129939102 1237648705129939101

========== end late cutout ==========

Tablec (rdifs 0-1.0 & late_z_rdif - early_z_rdif)

16.81 15.10 14.79 .072 .073
1237649918432116906 1237649918432116905 1237649918432116861

17.06 16.81 15.10 .072
1237649918432051452 1237649918432116906 1237649918432116905

======= begin late cutouts ==========

17.44 15.96 15.17 .026 .027 .029
1237667107427386008 1237667107427123292 1237667107427123291

17.35 15.26 14.92 .034 .036
1237665127482917140 1237665126945980430 1237665126945980429

17.82 16.43 16.18 .092
1237660345009111146 1237658203423572036 1237658203423572037

======= end late cutouts ============

======== begin cutouts early =========================

17.07 16.45 14.73 .047 .048 .051
1237664871900577859 1237664871900577858 1237664879416508702

16.76 14.55 14.12 .037 .038
1237655108368597025 1237655108368597023 1237655108368466005

======== end cutouts early =========================

============ begin serial 3 ========

17.66 15.28 14.92 .054
1237648704591954188 1237648721784078675 1237648721784078676

17.31 17.09 12.45 .027
1237654879665520883 1237654879665586217 1237654879665586207

17.83 17.01 15.56 .052
1237650369951039621 1237650760785985657 1237650760785920212

18.52 18.29 15.39 .066
1237666406847676499 1237663783139475499 1237663783139475592

18.70 18.22 17.21 .132 .133 .134
1237657191447265471 1237657191447330947 1237663784202731645

16.83 16.76 14.13 .023 .024
1237678437016600800 1237678437016600991 1237678617972441241

17.66 17.59 13.22 .023 .024
1237651822174339204 1237654879665520904 1237648705115848765

17.70 17.71 13.37 .029
1237654879665651998 1237654879128584701 1237654879128584347

18.23 15.97 14.33 .044 .046
1237663784742420679 1237654899002704016 1237650762386833444

17.08 15.63 15.24 .055 .056
1237648704592019849 1237648704592019781 1237648704592019780

17.92 16.66 15.75 .101 .102
1237674461487563159 1237674461487562846 1237674461487628533

17.65 15.92 14.66 .053 .055
1237648722293620962 1237648722293686378 1237648722293620931

========= end serial 3 =======

======== begin late cutouts ========

19.67 18.79 16.40 .114 .115 .116
1237663784218984961 1237663784218984588 1237663784218984587

17.66 16.60 16.47 .118 .119 .120
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17.35 15.75 15.26 .058
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18.13 16.88 17.35 .119 .120
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	18.26	17.56	17.86	.148	.149
1237650796752273782	1237674460950102287	1237674460950102288			
	18.92	15.45	17.67	.128	.129
GAMA 750281	1237648722321277296	1237648722321277288			
	17.42	15.67	15.87	.079	
1237671142017204569	1237671142017204568	1237671142017204445			
	14.52	14.41	12.83	.025	.026
1237658493355556921	1237658493355556919	1237658493355557008			
	18.63	17.67	17.66		15.75
1237657191446413426	1237667172930486360	1237663784201748564			
1237663784201683149	.079	.080			
	17.13	17.03	14.73	.044	
1237661435918876907	1237661435918876908	1237661435918876842			

17.13 15.19 14.93 .063 .064
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17.77 16.40 15.02 .077 .078 .079
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16.69 15.01 14.81 .055 .056
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======== begin late cutouts ============

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17.64 15.54 15.54 .050

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18.29 17.06 15.87 .065 .066
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17.26 17.01 16.35 .130
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17.39 17.26 17.01 .130
1237648705128956112 1237648721784144069 1237648721784144070

18.78 17.70 17.01 .130 .132
1237648721784144231 1237648721784144069 1237648721784144070

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======== begin late cutouts ============

18.55 17.90 .137423 1237648705667531018 14.45’ cltg

3M qso sbst broadline

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18.40 18.45 17.74 .136 .137
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17.09 16.36 15.81 0.047

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17.24 15.78 14.96 .055 .056
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17.23 16.26 15.64 .051 .053
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17.81 14.99 14.79 .049
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17.00 15.71 15.49 .060 .061 .062
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Serial, Late & cutout …

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======== end late cutouts ============

======= begin cutouts early ========================

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17.15 16.67 16.25 .078 .079
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18.87 18.68 18.14 .228
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18.22 16.74 15.68 .086 .087

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16.74 16.61

17.37 .099 1237665531173994665

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16.43 16.29 16.11 .115 .116 .117
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17.54 17.07 15.06 .053 .054
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17.56 17.09 15.08 .083100

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17.09 3M wide Ha qso sbst broadline “BLAGN Sy1”

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18.46 .121500 15.79” cltg 3M sbst DNA

17.93 .121445 1.276’ cltg weak 3M sfing DNA
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17.42 .120 rdif=0.5 P1 17.11 .120 rdif=1.3 P1
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17.56 17.07 15.26 .081 .082 .083
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17.35 17.24 minime 14.74 .018
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15.76 14.59 14.17 .029 .030
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15.76 15.32 14.17

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19.48 17.65 16.72 .122
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======= end serial ==========

Summary…

In these papers we have introduced Emergent Theory to the astronomy community. There is terminology we used to define families and other new morphological structures which is simple but we expect will be replaced. Also we hope the community will further elaborate the Mastory concept describing the mass aspect of family types. Also the solo and soli objects may be compared with *in situ* emergent and cltg objects to contrast their emergent nature. Finally, we intend to continue elaborating more examples for future publications. The currently estimated 2 trillion objects deserve accountability.