



# The IAS News & Views

Volume 80, Issue 9

[www.iasindy.org](http://www.iasindy.org)

## **Indiana Astronomical Society/Link Observatory Public Lecture**

**August 31, 2013**

**8:00 PM**

**Goethe Link Observatory**

**New Horizon - Mission to Pluto and the Kuiper Belt**

New Horizons is a [NASA robotic spacecraft](#) mission currently en route to the [dwarf planet Pluto](#). It is expected to be the first [spacecraft](#) to fly by and study Pluto and its moons with an estimated arrival date at the Pluto–Charon system of July 14, 2015. NASA may then also attempt fly-bys of one or more other [Kuiper Belt objects](#), if a suitable target can be located. Mike will also discuss the events leading up to the International Astronomical Union's re-classification of Pluto as a dwarf planet as well as the resulting controversy.

Mike has been a stargazer all his life and has been an advocate of planetary science. He has closely followed discoveries made by Voyager, Cassini, and the various Mars rovers. Like most everyone else, he is looking forward to seeing what Pluto looks like.

### **Swap Meet**

Prior to the general meeting, at 7PM, we will hold a swap meet at the Link Observatory. Go through your boxes and drawers of astronomical “valuables” that you haven’t used in years. Maybe someone else “needs” or can make good use of your excess gear.

---

### **From the President’s Desk**

The Indiana Family Star Party went well this year and we all had a good time.

A special thanks to Gerald, who spent considerable time attending all the IFSP planning meetings and organizing the list of helpers at the registration tent. With his advance planning and daughter, Mary, running the taxi service, manning the registration booth went smoothly.

Thanks to all who volunteered to help Gerald at the registration tent.

Friday evening’s lack of sky made it difficult to do a proper Sky Trekker program for the kids.

We’ll have to have a better plan B next year.

## IAS News and Views

Ron Whitehead's GreatCon Astronomical Quiz was, as usual, quite a challenge. We all rumbled a bit when the odd questions popped up, but it is a great educational experience and I encourage our membership to participate next year.

So far we have not been able to find a taker for the Fecker mount. It seems that no one wants a 1,500 pound museum piece. We are looking for other options.

We will have the Hog Roast on the grounds of the Link Observatory on Saturday, September 28<sup>th</sup>. Please RSVP at: [membership@iasindy.org](mailto:membership@iasindy.org) by September 15<sup>th</sup>. It is important that you RSVP so that we will know how many are coming and will have enough meat available. We are fortunate to have grill master, Mike Kirsch and his family cooking for us again this year. Mike and his family do a super job and the food is always tasty.

There will be no general meeting as we'll want to enjoy the meal and socialize. We will set up for observing after storing the chairs and tables. Please plan to help.

The Link will be open for deep sky observing during new Moon on the 6<sup>th</sup> and 7<sup>th</sup> of September, weather permitting. Let's hope for the best so we can tackle the Challenge lists.

There are several star parties scheduled for the first week of September during new moon, but all are at some distance. The nearest one is the Black Forest Star Party at Cherry Springs state park, PA, 515 miles/8 hour drive with a lead foot. Others are the Idaho Star Party and the Alberta Star Party.

---

## **IAS NEWS**

### **Hog Roast on September 28, 5:00 PM @ Link Observatory Please RSVP by September 15<sup>th</sup> at: [membership@iasindy.org](mailto:membership@iasindy.org)**

Our traditional annual Hog Roast will be held on the grounds of the Link Observatory on Saturday, September 28<sup>th</sup> beginning at 5:00 PM. This year we want to make certain that we have sufficient amounts of meat and other goodies available. Please let Roberta Allen know how many in your family will be attending. You may RSVP at: [membership@iasindy.org](mailto:membership@iasindy.org) It is important that you do so!

**Side dishes and desserts:** Families whose last names begin with A through C, please bring desserts. Families D through Z, please bring side dishes.

Chef, Mike Kirsch and his family will be presiding over the grill and preparing a delicious array of meats for us to enjoy. Make certain that you let Mike and his family know that you appreciate their skills.

We will need help setting up the tables and chairs, whether we are outside or in, so come early with your side dish or dessert and give us a hand.

---

## **Recent Events for the IAS**

### **General Meeting**

After the July general meeting we were able to set up outside and observe a few photons.



**The observing line.**



**Eric collimates his new 24"**



**Eric and Roberta Allen assembling with Bill Conner looking on**

## Lilly Space Camp

Just a brief report on how things went the first day. Two busloads of children aged 5-6 arrived promptly at 11 this morning. The crew was ushered into the Link auditorium where Shep spoke briefly and held a Q&A session to get a general idea of what they already knew. In so doing, it was apparent that the children had absorbed much of what Gerald presented to them the previous day. They were understandably eager to get on with the tour.

The first stop was the roll-off building where Steve McSpadden gave a brief talk on asteroid hunting and how this telescope had been used. Next stop was the pier room where I spoke about how important stability was for telescope use. I used the 6" refractor and Eric's 20" reflector blank as props to talk about types of scopes and mounts. Then came the main event where the Kellers and Shep talked about and demonstrated the 36" and moved the dome.

After tour completion came lunch. The original plan was to have lunch on the front lawn, but there was too much residual dew for that so they were allowed to eat in the auditorium instead. By 1 PM a headcount was performed and everyone was back on the buses.

The children were very well-behaved and were also well-supervised by their YMCA counselors. There was one counselor for every six to seven children. That level of control was both effective and appreciated. I think that the next day we'll split them into two groups for the tours, because we couldn't fit everyone into the buildings and rooms, so there was always a second group that had to wait. I believe they were a little more restless and failed to absorb quite as much of the message because of this.

One girl in particular cornered me before the tour and Shep afterward. She was very eager to talk astronomy, and was very knowledgeable for a six-year-old. She showed enough promise and prowess to be the next Hypatia. One the way in, one boy pointed at the dome and asked me what it was. I responded that a big telescope was inside, but he was insistent: "No, it's a space ship!" I saw no reason to argue. In short, it was a fun time and I look forward to the opportunity to repeat the experience tomorrow.

Bruce





### **August McCloud Monthly Star Gaze**

The event itself was good. We had about 20 people who were very engaging. Unfortunately the skies weren't too good. The atmosphere was very humid and the Gibbous moon washed out a lot of the deep sky objects. Fog rolled in about 10PM so we packed up.



**Mike shows some newcomers how to set up and use their telescope.**



**Mike elaborates on how to find things in the sky.**



**Sashi entertains a couple of visitors**

---

## Upcoming Public Events for August and September

**IAS/Holcomb Observatory Program Planning Meeting—7:00 PM, August 27, @ Holcomb Observatory**

**Link campout, August 30-31**

**IAS/Link Observatory General Meeting, August 31, 8:00 PM @ Link Observatory**

**Deep sky observing at Link – September 6-7, 8:00PM-till, weather permitting**

**McCloud Monthly Star Gaze - September 14, 7:30PM. McCloud Nature Park**

**IAS/Holcomb Observatory Program Planning Meeting—7:00 PM, Sept 24, @ Holcomb Observatory**

**Link Campout – September 27-28**

**IAS/Link Observatory Hog Roast - September 28, 5:00 PM @ Link Observatory**

IAS Board/Program Planning Meetings are held at Holcomb Observatory on Butler's Campus. IAS Members are welcome to attend. Should you like to attend and/or have an issue that you would like the Board to address, please contact Bill Conner at [president@iasindy.org](mailto:president@iasindy.org)

---

## Observing Activities

### Activities for August and September:

#### **Link Observatory -**

Link Campout August 30-September 1. Gates open 6:00 PM Friday.  
Impromptu observing as sky conditions allow. Check Yahoo site for information.

#### **McCloud Activities—**

McCloud Monthly Star Gaze September 14  
Impromptu observing as sky conditions allow. Check Yahoo site for information.

---

## Dark Sky Observing Site Information

We are able to observe at the Link Observatory, Prairie Grass Observatories, and McCloud Nature Park during non-scheduled times if they do not conflict with reserved activities:

The Link Observatory is open for observing during IAS functions held there from early spring to late fall. For scheduled events, see our calendar of events under the "Events Schedule" tab on the website [www.iasindy.org](http://www.iasindy.org). Impromptu observing opportunities are announced on the IAS Yahoo group site by our telescope operators as weather permits.

For those interested in observing at McCloud Nature Park, please call the park office 765 676 5437 before 4PM on the day you want to go. The administrators will give you permission to be there at night and make arrangements to turn off the lights.

For those interested in observing at Prairie Grass Observatory, call Hoppe at 1-765-296-2753.

---

## September DEEP-SKY CHALLENGE

### Bruce Bowman

Below please find a list of ten (10) objects to view this month. Those who complete the primary objects will receive a certificate via email and be recognized in the News and Views. We're also providing a challenge object to help push the limits of your observing skills. It's not necessary to successfully view the challenge object to receive the certificate; we only ask that you try.

Please complete the following list to receive the September certificate:

M75 (globular cluster in Sagittarius)  
NGC6934 (globular cluster in Delphinus)  
NGC7006 (globular cluster in Delphinus)  
NGC6905 (planetary nebula in Delphinus)  
NGC7027 (planetary nebula in Cygnus)  
NGC7008 (planetary nebula in Cygnus)  
NGC6871 (open cluster in Cygnus)  
NGC7128 (open cluster in Cygnus)  
NGC6951 (spiral galaxy in Cepheus)  
NGC7129 (cluster w/ nebula in Cepheus)

Challenge object for September 2013: NGC7139 (planetary nebula in Cepheus)

The above objects are located between 20 and 22 hours of right ascension and so are well-placed for evening viewing this month.

September is a good month for deep-sky observing in Indiana. With a little luck, the hazy murk that often confounds Hoosier astronomers during mid-summer may occasionally be swept away by a cold front. Rainfall is generally on the low side. And on the coolest September evenings, some of the densest portions of the Milky Way beckon; arching from the southwestern horizon through the zenith. This month we'll start in the south and work our way north.

M75 can be found in extreme eastern Sagittarius, about 30' NE of the 7.5m star HD190177. Look for an 8th magnitude, hazy patch about 3' in diameter with a prominent central blaze. Telescopes larger than 8" should begin to resolve some stars around its edges. With a Shapley-Sawyer class of I, M75 is one of the most concentrated globular clusters in the entire sky. Make special note of this object if you ever decide to pursue the Astronomical League's globular cluster award. Thirty degrees north, in the constellation of Delphinus the dolphin, you will find the very similar globular cluster NGC6934. Bright enough to be a Messier object, this cluster is only a little less condensed than M75. Look for a 9.5m star lying only 2' west of its center. A third globular cluster can be found about 4 degrees east of gamma Delphini. NGC7006 is about two magnitudes fainter than the previous two, but at 185,000 light-years away it is one of the most remote globular clusters associated with our galaxy. Visually, you are unlikely to resolve this cluster; expect to see only a faint smudge about 1.5' in diameter with a slight brightening toward the center.

A trio of planetary nebulae graces our deep-sky list this month. NGC6905 is tucked away in the northwest corner of Delphinus. Also known as the "Blue Flash Nebula" (who comes up with these names, anyway?), it is partially encircled on its eastern side by a trapezoid of stars 11-12m. Look for a

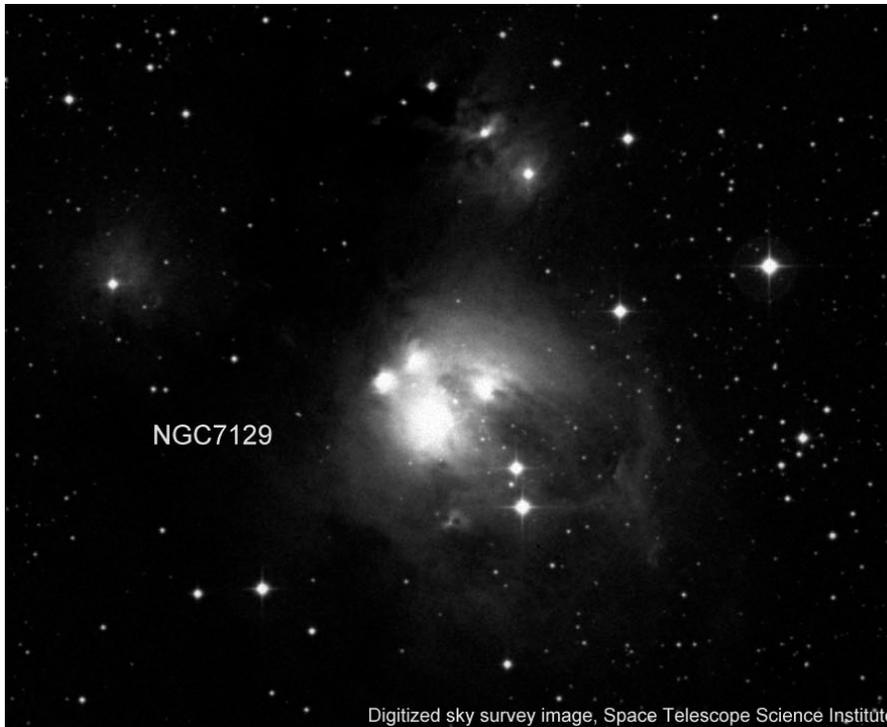
## IAS News and Views

35" bluish disk; those with larger apertures should also be able to detect the central star. On August 14, Nova Delphini 2013 flashed into prominence only 43' north-northeast of this planetary. As of this writing (8/16), the nova is approaching magnitude 4. Check it out!

Our two remaining planetary nebulae are found among the dense star-fields of Cygnus the swan. NGC7027 was originally thought to be a star-forming HII region until later studies showed it to be a stellar wind remnant. Look for a bright bluish oval elongated NE-SW and only 15" in the long dimension. A 12m star is found 2' to the west. This is one object that really benefits from high magnification. With care, condensations can be observed within the nebula. But it is small, and can be difficult to identify. If you have trouble locating it, blink the field with an OIII filter using the procedure I described last month. NGC7008 is six times larger but two magnitudes fainter. Look for an oval disk that's 1.5' in the long dimension with irregular patches and several faint stars superimposed. The lovely double star h1606 can be found just off the SSE edge of the halo. Everyone has their personal favorite objects, for whatever reason. NGC7008 is among mine.

There are plenty of galactic star clusters in Cygnus, and among the most impressive non-Messier objects is NGC6871. It is a bright, irregular cluster of 75 stars 7m and fainter in a 20' diameter. Look for this one just 13' southwest of the 5m orange star 27 Cygni. The brightest members lie along an erratic N-S stream. The integrated magnitude of this cluster is about five, but it can be difficult to distinguish from the rich Milky Way background. Rich-field telescopes are best here; failing that, use an eyepiece with the widest field of view possible. Quite the contrast is NGC7128, lying 25 degrees further northeast along the galactic equator. Almost five magnitudes fainter, NGC7128 appears as a small nebulous object in small telescopes; but apertures of 12" or larger reveal a very nice cluster of 25-30 faint stars in an area 3' in diameter. Ten of the brightest stars form an oval ring, the "gemstone" of the ring being a prominent reddish star near the SE edge.

Not all of our targets this month are within the Milky Way; about 3 degrees NNE of theta Cephei lies the spiral galaxy NGC6951. My astro-notes say this galaxy is pretty bright, pretty large, with an oval halo that's very gradually a little brighter in the center and has a faint stellar nucleus. This smudge of light is just a little more than 2' in the long dimension. Several degrees east along the same line of declination lies an interesting star-forming region in NGC7129. This is a small group of about 12 bright stars, six of which vaguely resemble the constellation of Delphinus. A large area of reflection nebulosity surrounds the Delphinus asterism but especially north and east of the central double. Try to find a dark site and use averted vision to detect this nebulosity; it can be difficult, and filters are of little help. There has been some confusion around the identity of this object and some catalog revisionists incorrectly list it as NGC7133. What we're looking for lies at 21h42m56s and +66deg06' (J2000).



Our challenge object this month is a planetary nebula located two degrees due south of NGC7129. NGC7139, at nearly 80" in diameter, is quite large as planetaries go but also quite faint. It is perfectly round, displays no annularity, and has several faint stars superimposed on it. Using scopes up to 13" in aperture, I have never been able to detect NGC7139 from my semi-rural back yard without an OIII filter. Those having a larger scope or a darker site may have more success with an unfiltered view. As is usually the case for such objects, optimal weather on a moonless night will probably also be necessary.

If you complete this list prior to the end of September, contact Bruce Bowman to ensure you receive recognition. At this time only IAS members are eligible. Congratulations to the following eight (8) IAS members for completing the July challenge: Mike Birch, Bill Conner, Phil Dimpelfeld, Thad Hatchett, Laura Keller, Steve McSpadden, Wayne McSpadden, and John Shepherd. Seven of the eight also successfully viewed or photographed the challenge object.

---

### **September Novice/Urban Observing Challenge**

#### **Phil Dimpelfeld**

Alpha-1/2 Capricorni, "Algiedi", Multiple Star in Capricornis, 20h 18m, -12d 33m, mag = 4.2, 3.7, sep = 381". Mag 9.6 and 10.6 companions at 46" and 7" forming a "Double-Double".

Omicron-1 Cygni, Triple Star in Cygnus, 20h 46.4m, +46d 44m, mag = 3.8, 7.0, 4.8, sep = 106", 331"

Gamma Delphini, Double Star in Delphinus, 20h 46.7m, +16° 07', mag = 4.5, 5.5, sep = 9.6"

NGC 7009, "Saturn Nebula", Planetary Nebula in Aquarius, 21h 04.2m, -11° 22', mag = 8.0, size = 44" x 23"

## IAS News and Views

61 Cygni, Double Star in Cygnus, 21h 06.9m, +38° 45', mag = 5.2, 6.0, sep = 28". First star to have its distance measured by parallax.

M15, Globular Cluster in Pegasus, 21h 30.0m, +12° 10', mag = 6.0, size = 12.0'

M2, Globular Cluster in Aquarius, 21h 33.5m, -00° 49', mag = 6.4, size = 13.0'

M39, Open Cluster in Cygnus, 21h 32.2m, +48° 26', mag = 4.6, size = 31.0'

Mare Nectaris, first quarter Moon

Mare Humorum, third quarter Moon

### Challenge Object:

Beta Cephei, Double Star in Cepheus, 21h 28.7m, +70° 34', mag = 3.2, 7.9, sep = 13.3"

### Notes:

To qualify for the Novice/Urban Observing List, you must observe at least 6 of the objects. Members are encouraged to find these objects without the use of GoTo so that they become more familiar with the night sky.

If you successfully observe at least 6 of the objects, please contact Phil Dimpelfeld ([philip.dimpelfeld@yahoo.com](mailto:philip.dimpelfeld@yahoo.com)). Let Phil know how many of the objects you were able to observe. You will be e-mailed a certificate recognizing your accomplishment.

The Novice/Urban Observing List will include objects on the Moon. Users should look for a map of the moon to use to identify future features. The "Sky & Telescope Field Map of the Moon" is a good investment ([shopatsky.com](http://shopatsky.com)).

---

## **IU Kirkwood Observatory Bloomington**

The Kirkwood Observatory Solar Telescope is open on the "First Saturday" of each month from 1-3 PM. Viewers may even be able to see a solar prominence or two, weather permitting. Updated weather conditions and closings will be posted at the Kirkwood Observatory Hotline at (812) 855-7736, and at the Observatory webpage, <http://www.astro.indiana.edu/kirkwood.shtml>.

Monthly openings of the solar telescope are planned for the first Saturday of each month during our 2013 observing seasons. And if you want to follow the Sun in between our monthly Solar Telescope openings, the website [www.spaceweather.com](http://www.spaceweather.com) provides daily updates.

Kirkwood Observatory on the IU campus is open each Wednesday evening from Spring Break until mid-November, weather permitting! Join us for a night of observing the night sky with the Kirkwood 12" refractor. Please visit our schedule at <http://www.astro.indiana.edu/kirkwood.shtml>, for a list of dates and times.

For updated weather conditions and closings, please call the Kirkwood Observatory Hotline at (812) 855-7736.

---

## NASA Space Place

### Size Does Matter, But So Does Dark Energy

By Dr. Ethan Siegel

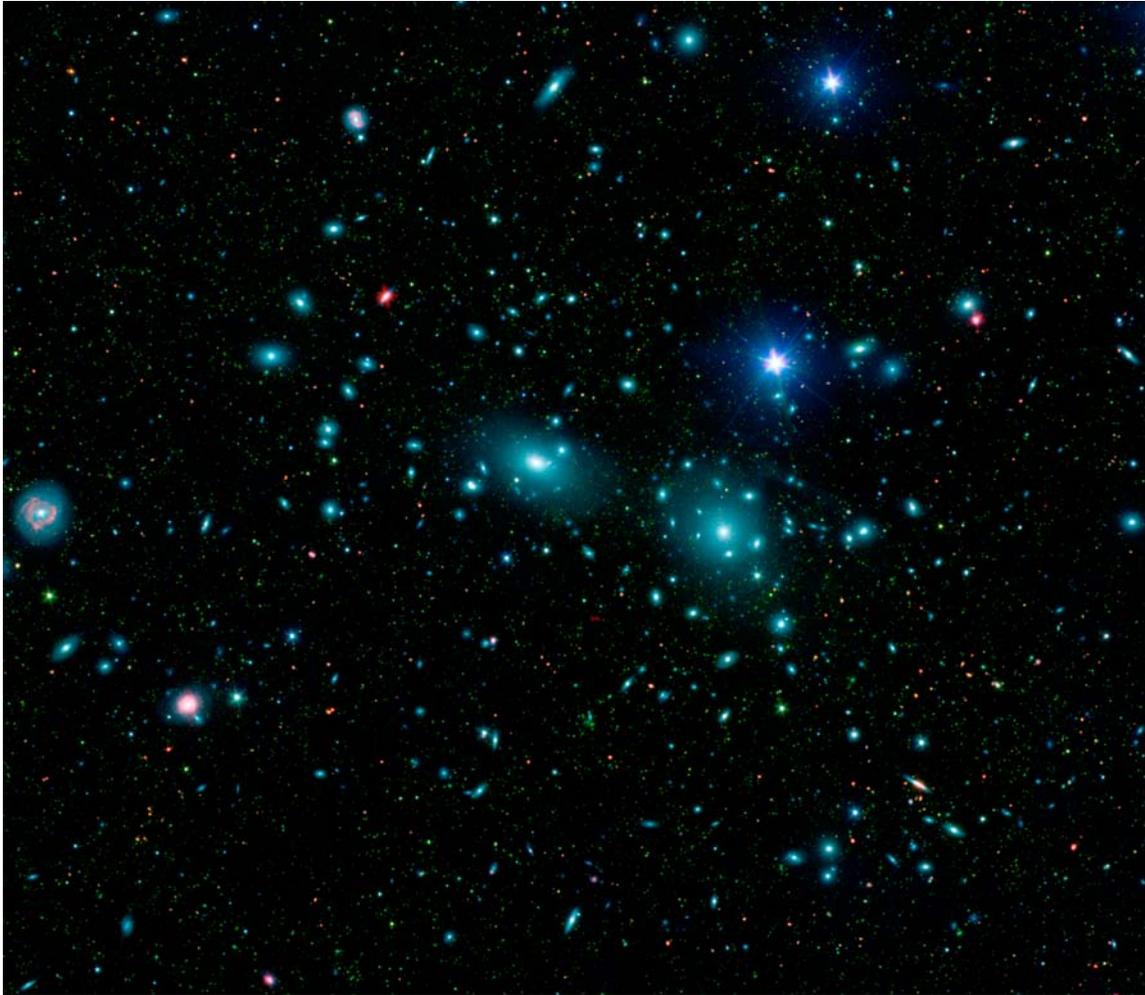
Here in our own galactic backyard, the Milky Way contains some 200-400 billion stars, and that's not even the biggest galaxy in our own local group. Andromeda (M31) is even bigger and more massive than we are, made up of around a *trillion* stars! When you throw in the Triangulum Galaxy (M33), the Large and Small Magellanic Clouds, and the dozens of dwarf galaxies and hundreds of globular clusters gravitationally bound to us and our nearest neighbors, our local group sure does seem impressive.

Yet that's just chicken feed compared to the largest structures in the universe. Giant clusters and superclusters of galaxies, containing thousands of times the mass of our entire local group, can be found omnidirectionally with telescope surveys. Perhaps the two most famous examples are the nearby Virgo Cluster and the somewhat more distant Coma Supercluster, the latter containing more than 3,000 galaxies. There are millions of giant clusters like this in our observable universe, and the gravitational forces at play are absolutely tremendous: there are literally *quadrillions* of times the mass of our Sun in these systems.

The largest superclusters line up along filaments, forming a great cosmic web of structure with huge intergalactic voids in between the galaxy-rich regions. These galaxy filaments span anywhere from hundreds of millions of light-years all the way up to more than a *billion* light years in length. The CfA2 Great Wall, the Sloan Great Wall, and most recently, the Huge-LQG (Large Quasar Group) are the largest known ones, with the Huge-LQG -- a group of at least 73 quasars -- apparently stretching nearly 4 billion light years in its longest direction: more than 5% of the observable universe! With more mass than a million Milky Way galaxies in there, this structure is a puzzle for cosmology.

You see, with the normal matter, dark matter, and dark energy in our universe, there's an upper limit to the size of gravitationally bound filaments that should form. The Huge-LQG, if real, is more than *double* the size of that largest predicted structure, and this could cast doubts on the core principle of cosmology: that on the largest scales, the universe is roughly uniform everywhere. But this might not pose a problem at all, thanks to an unlikely culprit: dark energy. Just as the local group is part of the Virgo Supercluster but recedes from it, and the Leo Cluster -- a large member of the Coma Supercluster -- is accelerating away from Coma, it's conceivable that the Huge-LQG isn't a single, bound structure at all, but will eventually be driven apart by dark energy. Either way, we're just a tiny drop in the vast cosmic ocean, on the outskirts of its rich, yet barely fathomable depths.

Learn about the many ways in which NASA strives to uncover the mysteries of the universe: <http://science.nasa.gov/astrophysics/>. Kids can make their own clusters of galaxies by checking out The Space Place's fun galactic mobile activity: <http://spaceplace.nasa.gov/galactic-mobile/>



Digital mosaic of infrared light (courtesy of Spitzer) and visible light (SDSS) of the Coma Cluster, the largest member of the Coma Supercluster. Image credit: NASA / JPL-Caltech / Goddard Space Flight Center / Sloan Digital Sky Survey.

---

**Public Outreach Programs – To schedule a program at the Link Observatory or at your site, please contact the following people:**

**Public Outreach Programs:** To schedule a public event, contact the IAS Events Coordinator by sending an email to: [events-coordinator@iasindy.org](mailto:events-coordinator@iasindy.org).

**Goethe Link Observatory tour:** To schedule a tour of the Link Observatory, contact the Link Observatory Manager by sending an email to [link-observatory@iasindy.org](mailto:link-observatory@iasindy.org)

---

**Astro Ads**

Are you changing or upgrading your equipment? Do you have or are you looking for astronomical materials and equipment? The Indiana Astronomical Society, as a service to its members, will publish non-commercial ads at no charge. The ad will stay in the Newsletter for 4 months and may be renewed at the owner's request. Please be sure to notify us when the item sells.

**To place an ad, send an email to [toeditor@iasindy.org](mailto:toeditor@iasindy.org):**

---

## Equipment Loan Program

The Loan Program has been helpful to those new to the hobby and others in need of observing equipment.

Did you know you could borrow a scope or piece of astronomy equipment from the Society and take it for a test drive? The Society has a program where members who are trying to determine what kind of equipment to buy can borrow one of the Society's scopes for a month or two and see how they like it. Philip Dimpelfeld is the chairman of the program and can arrange for your pickup and training on the use of the particular instrument. This is a great way to see what telescope you want to purchase. We have several scopes, eyepieces and binoculars to loan.

We will consider donations of equipment that are appropriate for this program. The IAS is classified as a public charity under section 509(a)(2) of the internal revenue code. We will be happy to provide you with an acknowledgement of your gift. Please contact our Equipment Loan Coordinator by sending an email to: [equipment@iasindy.org](mailto:equipment@iasindy.org)

---

### 2013 Calendar of Monthly Meetings

Month	Board	General	NAG	McCloud
January	8	12	12	
February	5	9	9	
March	5	9	9	
April	2	6	6	20
May	28	June 1	June 1	18
June	25	29	29	15
July	23	27	27	13
August	27	31	31	17
September	24	28		14
October	22	26	26	12
November	19	23	23	
December	None	14		

---

### IAS Membership Report for July 2013

On 7/31/13 the IAS had a total of 158 members.

During July there were 6 renewals, 2 new memberships and 4 members moved to inactive status.

The IAS welcomes the following new members:

Matthew T. Perkins - Avon, IN

Amy Barnes - Indianapolis, IN

We bid farewell to the following members who have moved to inactive status:

Jim Haeberle

Danny Kirby

Lynn Standeford (Deye)

Teresa Wright

Report submitted by Roberta Allen, IAS Membership Coordinator

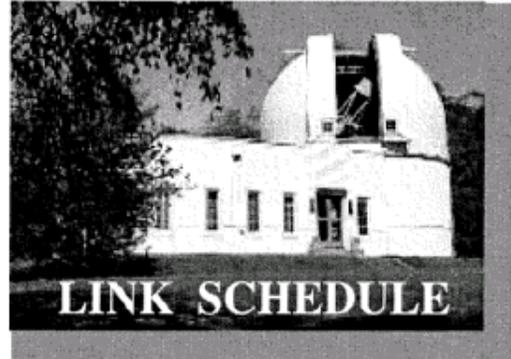
---

## Goethe Link Observatory

### Observatory Address

**Goethe Link Observatory  
8403 N. Observatory Lane  
Martinsville, IN 46151**

Latitude: 39 degrees, 33 minutes north  
Longitude: 86 degrees, 24 minutes west  
Phone: (317) 831-0668



Training programs are scheduled by the Observatory Manager as instructors are available and time permits. Although other requests can over-ride these sessions. It is the purpose of this listing to prevent activity conflicts.

To schedule the use of the 36-inch telescope: two criteria must be met: 1) *There must be a telescope operator and assistant available* 2) *contact the Observatory Manager for scheduling by sending an email to [link-observatory@iasindy.org](mailto:link-observatory@iasindy.org) DON'T WAIT UNTIL THE LAST MINUTE TO MAKE YOUR REQUEST OR YOU MAY NOT GET ACCESS.*

## IAS News & Views Monthly Newsletter for the IAS

### Accessing the IAS News & Views

The current Newsletter can be found on the website [www.iasindy.org](http://www.iasindy.org)

The monthly newsletter welcomes articles of local astronomical interest information and want ads: Please submit articles to the editor in a **email to editor@iasindy.org**:  
The Indiana Astronomical Society, Inc

**Membership information** You may contact our membership coordinator by sending an email to **membership@iasindy.org**.

Contact any IAS officer or the Treasurer **via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

## Pay Your Dues by PayPal

We can now pay dues on our website using Paypal. There is a cart system where you can pay dues, order magazines, or donate to the Society. The cart is found in the Join the Society section of the website. You will have to establish a PayPal account for yourself to make the transactions.

## Requests for Information

You may contact our officers, Board members, and Coordinators via our website at [www.iasindy.org](http://www.iasindy.org). Place your cursor on the "Home" tab and then select "Contact us". You may then page down to the

## IAS News and Views

person you desire to contact and send an email message requesting information or a telephone call back. We will be happy to respond within a reasonable time frame.

---

### **Logo Clothing**

The Board has developed a new supply of logo ware with our new logo using Mid Central Trophy in Kokomo, IN. Typically T shirts, sweatshirts, polo shirts, and caps are available. Now we are even making it easier for you. We have changed our method of order so that you can have better service. Call Linda, tell her this is an order for the IAS logo ware, discuss what you want and give her the size. She can determine the cost and shipping and mail the order to your home directly.

Linda

Mid-Central Trophy

**422 Arnold Ct**

Kokomo, IN 46902

765-453-5494

All Major credit cards are accepted.

Hours 9-5 EST

### August/September Calendar, 2013

**For a more detailed Calendar of Events see the webpage [www.iasindy.org](http://www.iasindy.org)**

Campout at Link

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
August 11	12	13	14 1st Qtr ☾	15	16	17 McCloud Star Gaze
18	19	20 Full Moon ○	21	22	23	24 LOSSC Black Holes
25	26	27 Board Meeting 7PM	28 3rd QTR ☾	29	30 Campout at Link	31 Public Lecture 8 PM Link Observatory Campout at Link
September 1	2	3	4	5 New Moon●	6 Deep Sky Observing Link Observatory	7 Deep Sky Observing Link Observatory
8	9	10	11	12 1st Qtr ☾	13	14 McCloud Star Gaze
15	16	17	18	19 Full Moon ○	20	21
22	23	24 Board Meeting 7PM	25	26 3rd QTR ☾	27	28 Hog Roast 5 PM Link Observatory <b>No General Meeting</b>