

# "CLEAR SKIES"



NEWSLETTER of the CHAMPAIGN-URBANA ASTRONOMICAL SOCIETY, Inc.  
An affiliate of the Champaign Park District

Volume 22  
Issue 3

March 2009

## CUAS OFFICERS MESSAGE

Sorry for the lateness of the newsletter. Note Dave's articles. Especially the section Looking up this month. Spring begins this month. Venus is prominent, and I never did see comet Lulin. I looked every clear night. I brought up Starry Nights, Astronomy.com, and other programs and still did not see it. But maybe there is still a small chance we can still see it.

Don't forget that this is the International Year of Astronomy. So let's get out there and promote our passion. The park tours start soon, and we still need to know who is going to do what and when.

The Planetarium has some fine programs for the next few months.  
WM

## LOOKING UP THIS MONTH

"Greetings fellow stargazers!" No wait, that line has been taken already. Anyway, spring is coming soon! I'm excited about that as I find the older I get, the less I like observing in sub-zero weather! Spring starts at 6:44pm CDT on March 20<sup>th</sup>. This is the "vernal equinox." It's more of a theoretical thing as "equinox" means "equal night" and we really don't have 12 daylight hours and 12 night time hours on this day due to atmospheric refraction. Meaning, when the sun has technically set, we can still see it because of light bending through the atmosphere.

Venus will draw the attention of telescopes this month, for at least the first three weeks. By mid-month Venus will be noticeably lower. By the 22<sup>nd</sup>, it's setting in the evening twilight. Inferior conjunction occurs on the 27<sup>th</sup> when Venus passes between the Sun and the Earth. Something rather odd occurs this pass, though. Venus will pass 8 degrees above the Sun. Technically, if you're good, you can see Venus in the evening sky and the morning sky on the same day! Right around the 20<sup>th</sup>, look nearly due west in the twilight using binoculars and see if you can spy Venus. Then set the alarm and get up only about ten minutes before sunrise and look east-northeast and look for it again! In both cases, you'll need a low, unobstructed horizon. A telescope should show a very thin crescent – quite impressive if you can aim



### CUAS DIRECTORY:

Guy Hampel, President	352-3690
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Mike Conron, Secretary	355-5996
Willard Brineger, Treasurer	356-5929
Mike Lockwood, 5 <sup>th</sup> Director	398-9778
Phil Wall	352-5442
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your scope low enough! Venus will rise in the morning twilight at the end of March and be in the morning sky the rest of the year. It's been a good run!

As Venus is setting in the west, Saturn is becoming more visible in the east. Opposition for Saturn occurs on March 8. Wait until it gets higher, though, before scouting it out with a telescope. The rings are tilted only about two degrees so it may look like nearly a line segment cutting across Saturn. Don't confuse Saturn with Regulus, in Leo. Saturn will be a bit brighter.

The rest of the planets are clustered in the morning sky. On March 1, Jupiter, Mercury and Mars are all very low in the sky but within a few degrees of each other. The trio rise on before 6am. Mercury hurries back towards the Sun to emerge in the evening sky in April. This will be the best evening view of Mercury for 2009. Mars continues to hug the horizon as twilight begins, but Jupiter gets higher in the morning sky. By the end of March, Jupiter is rising after 4am CDT. A thin waning crescent Moon is just to the right of Jupiter on the morning of the 22<sup>nd</sup>.

The largest asteroid in the solar system, Ceres, is still visible in northern Leo. In fact, on March 3, it is situation only 1/3 of a degree north of the star 54 Leonis on the Lion's back. It will be magnitude 7 early in the month. Opposition for Ceres was February 25 when it was as close to the Earth as it will be until the year 4164!

In other news, Comet Lulin is still in the sky, though it's on its way out of the solar system now. The comet was actually discovered back in the summer of 2007 by a 19-year-old Chinese student using a 16-inch telescope. In March, it will trek through Cancer and then into Gemini. It is expected to fade this month, though you should still pick it up in binoculars if you can get a clear, Moon-less sky. Here are some highlights:

- Mar. 5 – near the Beehive Cluster (M44)
- Mar. 16 – one degree from Delta Geminorum and probably magnitude 7 or 8.

Finder charts can be found on the Sky & Telescope web page at:

<http://www.skyandtelescope.com/observing/highlights/35992534.html>

-DCL

## ***Moon Phases***

### *Waning Gibbous Moon*



1 <sup>st</sup> quarter	March 4	April 2
Full	March 10	April 9
Last quarter	March 18	April 17
New	March 26	April 24

## ***CUAS NEWS***

Put the **Icko Iben Lecture** on your calendars for March 16 at 7:30pm at the Foellinger Auditorium. This year's speaker is Dr. Alex Filippenko, Professor of Astronomy at the University of California at Berkeley. Dr. Filippenko has quite the reputation for education in astronomy and has appeared in the History

Channel's series called "The Universe." On this Monday night, Dr. Filippenko will give a public talk entitled "Dark Energy and the Runaway Universe." The event is hosted by the Department of Astronomy and is free to the public.

The Staerkel Planetarium's **Great Observatories murals** are now visible in the planetarium lobby. Stop by for a look or check them out at the next meeting. Thanks to those members who were present for the official unveiling. Dr. You-Hua Chu, department head at the UI Astronomy Department, was on hand for the unveiling. She had a hand in Hubble images.

Thanks to webmaster Phil Wall, the club has a **new listserv!** Prairienet stopped supporting our CUAS email listserv as of January 1st. You do not need to have a Yahoo account to join this group, nor do you have to log in to a website, except once to join the group. When you click on the "join" link, you can set your membership preferences. You will be able to post email messages that will get sent to the addresses of all other group members.

***International Year of Astronomy update*** . . . . the IYA is here! The kick-off was February 27 and the unveiling of the M101 prints. Phil Wall has set-up a nice section on [www.cuas.org](http://www.cuas.org) for IYA plus other activities appear on the planetarium's site at: <http://www.parkland.edu/planetarium/IYA.html>. The first observing session is March 30 at Douglass Park in Champaign. The goal is to have the following at each park viewing session:

- 2-3 telescopes
- One white table from observatory
- Club banner plus the IYA event banner
- Club brochures, IYA brochures, other handouts.

We also need to keep a count of the number of people we see as this will count towards Night Sky Network attendance. Dave Leake will handle the table and handouts. We'll need to develop some sort of method to determine volunteers for each session – hopefully we'll do that at the March meeting. We don't want the same people doing all of the sessions as we want to avoid burn-out, plus each session is weather permitting with no rain date. The hotline number will be 351-2567.

The Staerkel Planetarium hopes to have some "**Galileoscopes**" for sale in the gift shop sometime soon, too!

April 2-5 begins "**100 Hours of Astronomy**" when webcams will take us into the control rooms at some of the major observatories for a live look into their operations. For more information, see <http://www.100hoursofastronomy.org/>

Also on tap for this month are the **Globe at Night** project, where you can do some star counts in the constellation Orion and report your observations online at <http://www.globe.gov/GaN/>. From this data, a light pollution map will be constructed. It's easy – login and add your data to the mix! Sixty-two countries participated in 2008. Along this same vein, "**Earth Hour**" is March 28 this year. On March 28, you are asked to turn off your outside lights from 8:30 to 9:30pm. 77 countries and over 600 cities are participating in an effort that started in Australia in 2007! Tell your friends and coworkers.

**Light Pollution news** . . . . here is the latest from the Illinois Coalition for Responsible Outdoor Lighting: On February 9th, a Joint Task Force of the International Dark-sky Association and the Illuminating Engineering Society released the core portion of the Model Lighting Ordinance (MLO), which they have been working on for a number of years, for public comment. The coalition has reviewed the document, and is of the opinion that it contains several principle flaws which would limit its application and effectiveness so severely in our state that we could not promote its adoption here. Of most serious concern are three major items:

1) The "lighting zones" strategy would place a huge workload on state, county, and local governments, which would have to form commissions to map every parcel in our entire state into a new zone system. Besides problems arising from creating that workload, the agencies doing this work would have the ability to arbitrarily apply such zoning, eliminating any impetus for a real, directed movement toward improved lighting, and especially of improving areas which are already suffering from over-illumination.

2) The exemption of any regulation of street lighting bypasses the major source of stray lighting into residential and natural areas in our state, and of stray light into our night time skies.

3) We believe that the analysis methods called for in the MLO are simply too complex for the governments and staffs of municipalities and developers to comprehend, much less implement and enforce. While we don't disagree with some of the results which some of the proposed regulations are designed to achieve, we believe that similar or better results could be achieved by adopting regulations which are easier for more people to understand and implement. We appreciate that these methods are being proposed by engineering professionals, and that they have the training and equipment to implement them, but we don't see it as a likely real-world outcome that a professional lighting engineer will be brought in each time a new or replacement fixture is installed in our state. Public comments on the MLO draft can be made until April 10th through this website: <http://www.darksky.org/mc/page.do?sitePageId=84399> . Please read the posted instructions carefully, as failure to comply with all of them will invalidate your review.

Last week, Illinois State Representative Rich Brauer (R., Springfield) "unveiled" his proposed HB0854, "Outdoor Lighting Control Act"; he will present the bill to the Illinois House Environment & Energy Committee on February 25th. Our coalition enthusiastically applauds Rep. Brauer for independently deciding that the quality of the nighttime sky over our state is worth protecting.

On March 11th, our team will be giving a presentation on good and bad lighting practices and principles for employees at the firm of Christopher B. Burke Engineering, Ltd. in Rosemont. This 250-employee-strong company handles public and private sector engineering in both Illinois and Indiana, and has a large environmental services division; we hope to influence their thinking on preservation of the nighttime environment.

The **2009 calendars** are nearly gone! We have five left! See Willard Brinegar if you'd like one. There are also T-shirts available at the meetings. They are all \$10 for members.

**For sale** . . . . Meade LXD55 SN 10" scope – like new – been to Astrofest once. All the original accessories are included plus a dew shield, Orion 12-volt dew zapper, 25' 12-volt power cord, and Coleman 12-volt powermate. The optics have never been cleaned and have been covered since purchased, there are no dents or scratches. Everything was in good working order when last used. The only thing wrong with it is that on one of the counter balances the threads are stripped. Asking \$800. Contact Vic Bennett at 217-840-7905.

Got a call from a woman who has a Dobson scope for sale, see below. WM

**For sale....** Odyssey compact dobson telescope 10.5 inch f 4.5 paraboloidal mirror by coulter optical. Telrad reflex sight . Stellarscope on pivot stand. \$200.00 obo Phone 217-892-9336 or cell 217-841-1708

Consider taking your **CUAS newsletter** by email only and save the club some money. By your request, we can email you a pdf file monthly instead of spending money on stamps.

The planetarium has an IYA web site now, which can be viewed by pointing our browser to [www.parkland.edu/planetarium](http://www.parkland.edu/planetarium) and clicking in "International Year of Astronomy." Comments are welcome! When the club gets a page up and running, that planetarium will link to the CUAS page.

Remember the dates for the **park tour!** We need your help! If everyone volunteers for two dates, then we can spread the work around.

Mon	Mar. 30	8-10pm	Douglass, C
Thu	Apr. 2	8-10pm	Crestview, U
Mon	Apr. 6	8-10pm	Prairie, U
Tue	Apr. 21	8:30-10:30	Eisner, C
Tue	Apr.28	8:30-10:30	Blair Park, U
Thu	Apr. 30	8:30-10:30	Robeson, C
Mon	May 4	8:30-10:30	Morrissey, C
Sun	May 17	8:30-10:30	Hessel Park, C
Tues	May 26	8:30-10:30	Cherry Hills, C
Thu	May 28	8:30-10:30	Meadowbrook, U
Wed	Aug. 26	8:30-10:30	Anita Purves, U
Thu	Aug. 27	8:30-10:30	Lohmann, U
Tue	Sep. 22	8-10pm	Clark, C
Thu	Sep. 24	8-10pm	Garden Hills, C
Mon	Sep. 28	8-10pm	Centennial, C

\* Daylight Savings Time

### TREASURERS REPORT

CUAS Treasurer's Report for February 2009  
Willard Brinegar, Treasurer 2009

As of 2/28/09

Assets\*

\$ 4160.11      checking account

\$ 4160.11 Total Assets

Income\*

\$ 70.00      7 T-Shirts @ \$10

\$ 165.00      11 membership dues @ \$15

\$ 50.00      Five key fees @ \$10

\$ 5.00      Donations

\$ 290.00      Total Income

Expense\*

\$ 0.00

\*Note: Magazine subscription funds are not reflected in Income and Outgo since they are simply sent on to the respective publishers. As of 1/31/09, all received subscription payments have been sent on.

## **OBSERVATORY NEWS**



**IMPORTANT INFO FOR DOME SITE USERS** . . . We have received a phone call from the gentleman who lives in the house south of the dome site. He reports a lot of activity at the dome by people who are not astronomers! According to our neighbor, a heavy traffic time is right around 4pm, after school. A black SUV has also been seen there a lot. In mid-January, the Champaign County Sheriff's Office was notified who pledged to drive by the site more. So, two things . . . 1) if you see suspicious activity at the observatory site, call the sheriff's non-emergency number at 333-8911 immediately, and 2) do not be offended if a squad car stops and questions you. Be cooperative as it should be obvious if you're there observing. *UPDATE:* On January 25, Mike Rosenberger "caught" the black SUV on the grounds and submitted the license number to the sheriff's office. Still – be aware!

Small projects list for warmer weather . . . . we probably need to **scrape paint** again, both inside and outside. The inside looks pretty bad in the daylight! Thank goodness it's used in the dark! Also, new **tarp** for the 16-inch (no paper or plastic), cooling **fans** in the telescope, and a **vent** for the shed. If you're returning the 8-inch red Dobsonian telescopes to the dome, remember to try to store them horizontally to help protect the mirror coatings. We also need to strip the paint on the inside but, given the dust that would be created, it might be best to wait until the telescope is removed.

## **A LOOK AT 2009 . . . .**

**Editors Note: This is a repeat from last month.**

Welcome to the International Year of Astronomy (IYA) and the 400<sup>th</sup> anniversary of the first astronomical observations made with this instrument then called the "Optik Tube" and we now call the telescope. Strap on your seatbelt as there isn't a lack of things to do astronomically this year. Here's a quick look!

First, eclipses. This is an easy one. Basically there aren't any! For us, anyway. We'll have two solar and four lunar in 2009, but the paths of the two solars won't come close to us. The "big one" is a total solar that crosses India, China and the South Pacific on July 22. The Annular eclipse is early (January 26) but the path is in the Indian Ocean. The partial lunar eclipse in December is visible in the eastern hemisphere and three penumbral lunar eclipses aren't worth mentioned as they occur at either Moonrise or Moonset for us! Oh well! The next biggie is July 11, 2010 . . . and we won't see that one either.

On to planets . . . Mercury is a tough rascal to corral since it's so close to the Sun, so you have to catch it on one side or the other. There are four views of Mercury in the evening sky and three in the morning sky in 2009. We start the year with a decent view of the planet but by mid-January, it's too low to see in the west. The best evening view occurs from about April 5 to May 15. On April 25, Mercury sets at 9:40pm CDT. From mid-July to early September is another decent view and a better one from mid-November to the end of the year. On December 20, you'll have an hour of darkness to spy Mercury in the west. For the morning-minded, there are two favorable times, one being from the end of May to early July

and another from the end of September to the end of October. In early October, Mercury rises near 5:30am.

Venus begins the year placed magnificently in our evening sky where it will stay until March 26. Greatest separation from the Sun occurs on January 14 when it sets near 9pm. By the end of February, it makes a rapid trek towards the Sun's glare. Venus passes between the Sun and Earth on March 27 but it's 4° above the ecliptic, so technically you can see it both in the evening and the morning sky! After March 23 it makes a slow ascent in the morning sky. By mid-July, Venus is rising at 3am CDT and brightening the morning skies.

Mars rises as the morning twilight begins from New Year's Day to the end of April! Yes, it rises earlier, but the sunrise time is also earlier! It will eventually make it's way into the evening sky later in the year. By the end of December it will rise at 7:30pm CST. The rovers celebrate five Earth years on Mars in 2009.

Jupiter disappears behind the Sun early in January to reappear in the morning sky by mid-February. It will rise at midnight CDT on June 15. Opposition for Jupiter (when it is usually closest and rises at sunset) occurs on August 14.

Saturn will be a spring object near the stars of Leo. It's opposition is March 8 so we'll have a good view! In late August, Saturn will set in the evening twilight to eventually reappear in the morning sky by early October.

Oppositions for both Uranus and Neptune occur on September 16 and August 17 respectively.

As far as notable planetary gatherings go, Mercury and Saturn are close for several weeks near August 23 in the evening sky. In the morning sky, Mercury is 0.7° below Jupiter on February 24, and Mars is 2° to the upper left of Venus on June 21. Saturn is 0.5° to the left of Venus during the morning of October 13.

The Moon will "occlude" (or pass in front of) some brighter objects this year including Venus on April 22 (around 8am), the star Antares on June 6, and the Pleiades star cluster on August 14 during the morning hours.

Meteor showers are fun to observe if you have a dark, Moonless sky. It's usually best to observe "shooting stars" before dawn, during the early morning hours. This year, the Lyrids (April 21-23) occur just before New Moon, the Eta Aquarids (May 5-7) are drowned out by a waxing gibbous Moon, and the Delta Aquarids will be better as the first quarter Moon will set around midnight. The potent Perseid shower (August 11-13) happen at third quarter Moon, which rises around midnight – that's not good, but you'll still see the brighter meteors. The Orionids (October 22) occur four days before new Moon, the Leonids (November 17) are at new Moon and the Geminids (December 14) occur three days before new Moon, so all three of these are favorable, though it's naturally chillier!

As far as the club goes, our meetings are on the second Thursday of the month at the Staerkel Planetarium at Parkland at 7pm. We also meet at our observatory for "Family Skywatch" open house events on the Saturday closest to the first quarter Moon. In 2009, these dates are Jan. 31, Feb. 28, Apr. 4, May 2, May 30, June 27, July 25, Aug. 29, Sept. 26, Oct. 24 and Nov. 21. Note that, due to how the calendar worked out, there is not a Skywatch in March. Usually the Saturday before these dates, we have our member's only, New Moon sessions at the dome. But we'll meet at the Middlefork Forest Preserve near Penfield for some dark sky viewing on April 18, August 15 and October 10, all at 8pm.

The planetarium will have girl scout workshops in early April followed by boy scout merit badge workshops in early May. See the planetarium web site for more info. They'll also open a show called "Bad Astronomy" sometime in May. Be *sure* to see this one!

The IYA has many events this year with further info available on the web. The Hubble print unveiling will be at the planetarium on February 17 from 4:30 to 6:30 and you're invited to stop by. The dates for our "park tour" of sidewalk observing is on both the club web site and the planetarium web site – *please* plan to come to some of those! The "Globe at Night" project is March 16-28, and "100 Hours of Astronomy" is April 2-5. More information about these events will appear in upcoming newsletters. A two-part "Quest for Infinity" NOVA special will be shown on PBS April 7 and 14. World Space Week is

October 4-10 followed by the Great Worldwide Star Count from October 11-23. The 40<sup>th</sup> anniversary of the first Moon landing will occur on July 20<sup>th</sup>.

We owe all this activity to Galileo, who celebrates a birthday on February 15. He'll be 445 years old. On August 25 this year, we'll have the 400<sup>th</sup> anniversary of Galileo using his telescope to show a group of Venetian lawmakers a few things in the sky . . . . .thus completing the "first astronomical outreach activity involving a telescope" ever! *Let us continue the 400 year tradition!*

-Dave Leake



## LOOKING AHEAD

March 6                      "World of Science" talk              7pm                      Staerkel Planetarium  
State Climatologist Jim Angel will discuss "Climate Extremes" in Illinois.

March 12                      CUAS Club Meeting                      7-8:30pm              Staerkel Planetarium  
We'll go over the particulars for the park tour for IYA. If there's no other program, the club has a new DVD about the impact of the telescope called "Eye on the Sky" produced by the European Space Agency that we could watch.

March 16-28                      "Globe at Night" Project  
Count stars in the constellation Orion from your backyard and log your data online to help develop a light pollution map of the country. See the club news section for details.

March 20                      "Spring Prairie Skies" opens 7pm                      Staerkel Planetarium  
Our traditional backyard skywatching star show switches from the winter to the spring constellations. Call 351-2446 for a full schedule.

March 28                      New Moon Observing                      8pm-?                      Observatory

March 28                      Earth Hour                      8:30pm  
We are asked to shut off all of our outside lights from 8:30 to 9:30pm this night. Spread the word! See club news for more info.

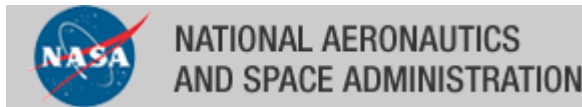
March 30                      IYA Park Tour                      8-10pm                      Douglass Park  
If you can, join us for the first of about a dozen observing sessions in the park. We'll hand out brochures and maybe do a little recruiting of new members. Bring a telescope if you have one, too. All observing is weather permitting. Stay near the annex at 5<sup>th</sup> and Grove Street.

April 2                      Moonwalk 2009 kick-off                      5-7pm                      Staerkel Planetarium  
Again, we'll try to beat Rockford and Peoria by logging our miles walking. Lets see if we can walk to the Moon and back . . . . twice! Form a team and participate! More info will be available as we get closer to the event.

April 2-5                      "100 Hours of Astronomy"  
See the club news section for more information.

April 2                      IYA Park Tour                      8-10pm                      Crestview Park  
Night #2 takes us to Crestview Park in Urbana. Join us if you can (weather permitting, of course). A full IYA schedule appears on the web site. If you can, join us for the first of about a dozen observing sessions in the park. We'll hand out brochures and maybe do a little recruiting of new members. Bring a telescope if you have one, too. All observing is weather permitting.

April 3                      "World of Science" talk                      7pm                      Staerkel Planetarium  
Can plants make you healthy? What information is supported by good science? Dr. Donald Briskin will show us some useful "Medicinal Plants." Admission is \$1 at the door.



### *Astronomy Club Resources*

The following was taken from NASA's web site.

Here's a short quiz to test your knowledge of what's real and what isn't in the area of space travel and the search for extraterrestrial life.

*Are we alone?*

1. We have strong evidence that that our solar system is not the only one; we know there are many other Suns with planets orbiting them.

SCIENCE FACT.

Improved telescopes and detectors have led to the detection of dozens of new planetary systems within the past decade, including several systems containing multiple planets.

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*One giant leap for bug-kind*

2. Some organisms can survive in space without any kind of protective enclosure.

SCIENCE FACT.

In a European Space Agency experiment conducted in 2005, two species of lichen were carried aboard a Russian Soyuz rocket and exposed to the space environment for nearly 15 days. They were then resealed in a capsule and returned to Earth, where they were found in exactly the same shape as before the flight. The lichen survived exposure to the vacuum of space as well as the glaring ultraviolet radiation of the Sun.

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*Hot real estate*

3. Organisms have been found living happily in scalding water with temperatures as high as 235 degrees F.

SCIENCE FACT.

More than 50 heat-loving microorganisms, or hyperthermophiles, have been found thriving at very high temperatures in such locations as hot springs in Wyoming's Yellowstone National Park and on the walls of deep-sea hydrothermal vents. Some of these species multiply best at 221 degrees F, and can reproduce at up to 235 degrees F.

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*Has E.T. already phoned home?*

4. We now have evidence that some form of life exists beyond Earth, at least in primitive form.

SCIENCE FICTION.

While many scientists speculate that extraterrestrial life exists, so far there is no conclusive evidence to prove it. Future missions to Mars, the Jovian moon Europa and future space telescopes such as the Terrestrial Planet Finder will search for definitive answers to this ageless question.

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*To infinity, and beyond!*

5. We currently have the technology necessary to send astronauts to another star system within a reasonable timespan. The only problem is that such a mission would be overwhelmingly expensive.

SCIENCE FICTION.

Even the the unmanned Voyager spacecraft, which left our solar system years ago at a breathtaking 37,000 miles per hour, would take 76,000 years to reach the nearest star. Because the distances involved are so vast, interstellar travel to another star within a practical timescale would require, among other things, the ability the move a vehicle at or near the speed of light. This is beyond the reach of today's spacecraft -- regardless of funding.

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*Fellowship of the rings*

6. All of the gas giant planets in our solar system (Jupiter, Saturn, Uranus and Neptune) have rings.

SCIENCE FACT.

Saturn's rings are the most pronounced and visible, but they aren't the only ones.

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*May the force be with you*

7. In the "Star Wars" films, the Imperial TIE Fighters are propelled by ion engines (TIE stands for Twin Ion Engine). While these spacecraft are fictional, real ion engines power some of today's spacecraft.

SCIENCE FACT.

Ion propulsion has long been a staple of science fiction novels, but in recent years it has been successfully tested on a number of unmanned spacecraft, most notably NASA's Deep Space 1. Launched in 1998, Deep Space 1 rendezvoused with a distant asteroid and then with a comet, proving that ion propulsion could be used for interplanetary travel.

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*A question of gravity*

8. There is no gravity in deep space.

SCIENCE FICTION.

If this were true, the moon would float away from the Earth, and our entire solar system would drift apart. While it's true that gravity gets weaker with distance, it can never be escaped completely, no matter how far you travel in space. Astronauts appear to experience "zero-gravity" because they are in continuous free-fall around the Earth.

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*Beam me up, Scotty!*

9. The basic premise of teleportation -- made famous in TV's "Star Trek" -- is theoretically sound. In fact, scientists have already teleported the quantum state of individual atoms from one location to another.

SCIENCE FACT.

As early as the late 1990s, scientists proved they could teleport data using photons, but the photons were absorbed by whatever surface they struck. More recently, physicists at the University of Innsbruck in Austria and at the National Institute of Standards and Technology in Boulder, Colorado, for the first time teleported individual atoms using the principle of quantum entanglement.

Experts say this technology eventually could enable the invention of superfast "quantum computers." But the bad news, at least for sci-fi fans, is that experts don't foresee being able to teleport people in this manner.

*Good day, Sun-shine*

10. Tatooine, Luke Skywalker's home planet in the "Star Wars" films, has two Suns -- what astronomers would call a binary star system. Scientists have discovered recently that planets really can form within such systems.

SCIENCE FACT.

Double-stars, or binary systems, are common in our Milky Way galaxy. Among the more than 100 new planets discovered in recent years, some have been found in binary systems, including 16 Cygni B and 55 Cancri A. (But so far, no one has found a habitable planet like Luke Skywalker's Tatooine.)

## MEMBERSHIP FORM

- Enroll me as a new member!  
 Membership renewal [attach mailing label]  
 Change of address only

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Phone # \_\_\_\_\_  
Email address: \_\_\_\_\_

Make all checks payable to:  
"Champaign-Urbana Astronomical Society"

Circle all that apply:

Basic membership	\$15
Observatory key fee	\$10
Astronomy magazine renewal*	\$34
Sky & Telescope renewal*	\$33
Donation	\$ _____
Total Enclosed	\$ _____

\*enclose mailing label

Detach and mail to:  
C.U.A.S. Treasurer  
c/o Staerkel Planetarium/Parkland College  
2400 West Bradley Avenue  
Champaign, IL 61821

**CHECK OUT ALL CLUB EVENTS ON THE CUAS HOME PAGE:** <http://www.cuas.org>

"Clear Skies" is published twelve times per year for its membership. [Circulation: 78]  
The Champaign-Urbana Astronomical Society is an affiliate group of the **Champaign Park District**. <http://www.champaignparkdistrict.com>

**William M. Staerkel Planetarium** has public shows on Friday evenings in August. Call 217/351-2446 for more information. <http://www.parkland.edu/planetarium>



**Champaign-Urbana Astronomical Society  
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