Dr. Peter A. J. Englert to speak at club meeting

Dr. Peter A. J. Englert, Faculty and Professor at HIGP UHM will be giving a talk titled "Exploring Mars History and recent discoveries". Dr. Englert was, until May 5, 2017 the President & Vice Chancellor of Quest University Canada. Englert's research background includes geophysical studies and space research. He currently is a professor at the HIGP department at university of Hawaii at Manoa. He participated in NASA’s Mars Observer and Mars Odyssey Missions. [https://en.wikipedia.org/wiki/Peter_Englert](https://en.wikipedia.org/wiki/Peter_Englert)

Potluck is scheduled for the December meeting on December 4

We will be having our annual potluck dinner at the December Club Meeting (December 4). April Lew will be the point person and general all around coordinator of this event. You may recall that Gretchen West had assumed much of that responsibility in the past but she has gone on to her reward in El Dorado. (Continued on page 9)
President’s Message
November 2018

Our recent planet feast is beginning to wind down. Jupiter is quickly disappearing, and Saturn will follow before we know it. Mars will stay in our evening sky for quite a while since its orbit takes it around the Sun about half as fast as Earth, but it is rapidly shrinking in the eyepiece. At least we can still show its color to those who look through our telescopes even as details on the surface become ever more elusive.

The European Space agency has just launched its BepiColombo mission to Mercury. If successful, this will be only the third spacecraft to visit our innermost planet. Its double orbiter design should greatly advance our understanding of some of the processes at work there. It will take seven years to get into orbit, though, so be patient! Its first Mercury flyby, however, is in less than three years.

Closer to home, we have club elections coming up in December. Our Astronews editor, Charlie Rykken, is stepping down, so we will need to fill that position, at least, with someone new. If you are interested in taking over for him, or want to fill another position on the board, please put your name in nomination. I’m sure Charlie will be happy to help the new editor learn the ropes. The HAS is run by volunteers. If you feel that you want to do more to contribute to the functioning and success of the club, please join us.

Also in December, we will have our annual potluck dinner before the meeting. This is a chance for our members to socialize, indoors and with lights on. This is a chance to put a face to a voice you may only have heard in the dark at a star party!

(Continued on page 4)
Observer’s Notebook—November 2018  by Jay Wrathall

**Planets Close To the Moon**

Times are Hawaii Standard Time

- Nov 6, 09h, Moon 8.8º NNE of Venus  
  (17º from sun in morning sky)
- Nov 9, 04h, Moon 6.6º NNE of Mercury  
  (23º from sun in evening sky)
- Nov 11, 06h, Moon 1.4º N of Saturn  
  (47º from sun in evening sky)
- Nov 15, 19h, Moon 0.95º SSE of Mars  
  (96º from sun in evening sky)
- Nov 16, 22h, Moon 2.6º SSE of Neptune  
  (109º from sun in evening sky)
- Nov 20, 13h, Moon 4.5º SSE of Uranus  
  (151º from sun in evening sky)

Jupiter is closer the 15º from the sun when near the moon in November.

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**Planets in November**

<table>
<thead>
<tr>
<th>Planet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>can be seen low in the southwest at dusk during the first two weeks of November.</td>
</tr>
<tr>
<td>Venus</td>
<td>is low in the morning sky at the first of the month but climbs rapidly and at the end of the month rises three hours before dawn. It reaches greatest brightness on Nov 29.</td>
</tr>
<tr>
<td>Mars</td>
<td>Dominates the southern evening sky at magnitude -0.6 in early November and setting after midnight. By the end of November it fades in brightness to magnitude -0.1.</td>
</tr>
<tr>
<td>Jupiter</td>
<td>is low in the southwest after sunset for the first week of the month, then will be lost in the glare of the sun, reaching conjunction on Nov 25.</td>
</tr>
<tr>
<td>Saturn</td>
<td>is in the south/southwest in the evening hours at magnitude +0.6. It can be observed for well for an hour or two after sunset before sinking into the turbulence near the horizon.</td>
</tr>
<tr>
<td>Uranus</td>
<td>Reached opposition on Oct 23, is high in the southern sky during evening hours in Aries. It shines at magnitude +5.7, barely visible to the unaided eye in very dark skies.</td>
</tr>
<tr>
<td>Neptune</td>
<td>can be viewed in Aquarius in the evening sky at magnitude +7.9</td>
</tr>
<tr>
<td>Juno</td>
<td>Juno reaches opposition on November 16 in it’s closest approach to earth since 1983. It will shine at magnitude +7.4.</td>
</tr>
<tr>
<td>Pluto</td>
<td>is visible in the west after sunset during the early evening hours.</td>
</tr>
</tbody>
</table>

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**Other Events of Interest**

Times are Hawaii Standard Time

- Nov 6, 05h, Mercury at greatest elongation  
  (23.3º east of the sun in evening sky.)
- Nov 7, 06:02 h, Moon New
- Nov 16, 02h, Juno at opposition.
- Nov 17/18, Leonid meteor shower.
- Nov 25, 20h, Jupiter in conjunction with sun  
  (Passes into morning sky)
- Nov 22, 19:39h, Moon Full
- Nov 26, 23h, Mercury at inferior conjunction  
  (Passes into morning sky)
- Nov 29, 16h, Venus brightest, mag -4.7.
President Chris Peterson called the October 2, 2018 meeting of the Hawaiian Astronomical Society to order at 7:30 p.m. The meeting was held in the Planetarium on the grounds of the Bishop Museum, Honolulu, Hawaii. There were approximately eighteen members in attendance.

September HAS membership meeting minutes were adopted. January Membership meeting will be on January 8, 2019.

Mark Watanabe asked for volunteers for a star party for the Punahou Astronomy Class S on Oct. 16. Oct 20th is International Observe the Moon Night.

Joanne: Oct 25th Bishop Museum has partnered with the United Japanese Society of Hawaii to bring their annual Tsukimi no Kai (Full Moon Viewing) event to the campus which will be on Thursday October 25, 2018 from 5:30pm – 9:00pm. Volunteers can park in the back parking lot and set up telescopes on the front lawn.

Chris Peterson talked about several astronomy news stories:

NASA’s OSIRIS-REx snaps its first pic of asteroid Bennu.

The ISS (International Space Station) will fly in front of the moon. Check amateurastrophotography.com/how-to-see-the-iss-transit for location and time to catch the occultation.

(Continued from page 2) President’s Message

There is always plenty of good food at these events, so remember to come early that night and enjoy the food and company.

For the November meeting, our new Vice President, Polly Miao, has recruited a speaker. It’s been a while since we had a talk like this, so if that’s something you enjoy, be sure to attend.

Chris Peterson
### Upcoming Star Parties

**Public Party**
- **Dillingham** November 10 (Charlie Rykken)
- **Geiger** November 17
- **Kahala** November 17

### Upcoming School Star Parties

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri</td>
<td>November 9</td>
<td>Wahiawa Middle School</td>
</tr>
<tr>
<td>Fri</td>
<td>November 9</td>
<td>'Ohana Nurturing - Kilo H k</td>
</tr>
<tr>
<td>Wed</td>
<td>November 14</td>
<td>Helemano Elementary School</td>
</tr>
</tbody>
</table>
Mars Oppurtunity is still dusty.

Mandy Kirchgessner was the guest speaker. She works for the Bishop Museum as the Education Director. Her focus is finding funding and education.

A question was asked – do HAS members qualify for free planetarium show entry with membership card? Mandy will discuss this with Peter.

Joanne talked about the tilting of Saturn’s rings.

Peter Besenbruch showed videos of current astronomy news stories: MINERVA-II1 rovers send images from asteroid Ryugu

TESS discovered 2 potential exoplanets. The first exoplanet candidate was announced on September 19, is roughly twice the size of Earth and orbits a star called Pi Mensae, 60 light years away from Earth. It orbits its star every 6.3 days and seems to have a density similar to water. The second planet candidate is closer to Earth, at just 49 light years away. This potentially Earth-sized world circles its star making a full orbit in just 11 hours. A team of researchers using the Dharma Endowment Foundation Telescope, a 50-inch telescope atop Mount Lemmon in southern Arizona, have announced the discovery of a rocky exoplanet. The exoplanet's parent star, called 40 Eridani A, is precisely the location where "Star Trek" creator Gene Roddenberry envisioned Spock's home planet of Vulcan. It is probably tidally locked to its host star. A cooking show from the ISS using prepackaged ingredients and the microwave. As there was no other business, the meeting was adjourned at 9 pm. Refreshments were served in the rotunda, and provided by Andy and Hiroko Stroble.

Sincerely,
Secretary April Lew
This year’s International Observe the Moon Night is on Oct. 20. Look for astronomy clubs and science centers in your area inviting you to view the Moon at their star parties that evening!

On Oct. 20, the 11-day-old waxing gibbous Moon will rise in the late afternoon and set before dawn. Sunlight will reveal most of the lunar surface and the Moon will be visible all night long. You can observe the Moon’s features whether you’re observing with the unaided eye, through binoculars or through a telescope.

Here are a few of the Moon’s features you might spot on the evening of October 20:

Sinus Iridum—Latin for “Bay of Rainbows”—is the little half circle visible on the western side of the Moon near the lunar terminator—the line between light and dark. Another feature, the Jura Mountains, ring the Moon’s western edge. You can see them catch the morning Sun. Just south of the Sinus Iridum you can see a large, flat plain called the Mare Imbrium. This feature is called a mare—Latin for “sea”—because early astronomers mistook it for a sea on Moon’s surface. Because the Moon will be approaching full, the large craters Copernicus and Tycho will also take center stage.

Copernicus is 58 miles (93 kilometers) across. Although its impact crater rays—seen as lines leading out from the crater—will be much more visible at Full Moon, you will still be able to see them on October 20. Tycho, on the other hand, lies in a field of craters near the southern edge of the visible surface of the Moon. At 53 miles (85 kilometers) across, it’s a little smaller than Copernicus. However, its massive ray system spans more than 932 miles (1500 kilometers)!

And if you’re very observant on the 20th, you’ll be able to check off all six of the Apollo lunar landing site locations, too!

In addition to the Moon, we’ll be able to observe two meteor showers this month: the Orionids and the Southern Taurids. Although both will have low rates of meteors, they’ll be visible in the same part of the sky.

The Orionids peak on Oct. 21, but they are active from Oct. 16 to Oct. 30. Start looking at about 10 p.m. and you can continue to look until 5 a.m. With the bright moonlight you may see only five to 10 swift and faint Orionids per hour.

(Continued on page 10)
The Northern Taurids (017 NTA) are the best placed meteor shower this month of the four offerings. The Moon is new on November 7\textsuperscript{th}, and the shower peaks on November 12\textsuperscript{th}. In past years, I have reported that this shower is known for producing fireballs, along with the October Southern Taurids.

The $\alpha$-Monocerotids (246 AMO) put on a minor show in 2017 and may nearly equal the performance in 2018. The story is documented in the December 3, 2017 Central Bureau Astronomical Telegram reported by Jenniskens (SETI) and Odeh (International Astronomical Center). 127 meteors were “observed” by camera over a 7.5 hour period on November 21/22. The brightest meteors peaked at visual magnitude one. Meteor velocities averaged 63 km/second, which is near the reported average for the shower (65

(Continued on page 11)

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Full Moon</th>
<th>Last Quarter</th>
<th>New Moon</th>
</tr>
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<tbody>
<tr>
<td>November 15</td>
<td>November 23</td>
<td>November 30</td>
<td>November 07</td>
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</table>

<table>
<thead>
<tr>
<th>Shower</th>
<th>Activity</th>
<th>Maximum</th>
<th>Radiant</th>
<th>$V_\infty$</th>
<th>$r$</th>
<th>ZHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Taurids (017 NTA)</td>
<td>10/20 → 12/10</td>
<td>Nov 12</td>
<td>230°</td>
<td>58°</td>
<td>+22°</td>
<td>29</td>
</tr>
<tr>
<td>Leonids (013 LEO)</td>
<td>11/06 → 11/30</td>
<td>Nov 17</td>
<td>235.27°</td>
<td>152°</td>
<td>+22°</td>
<td>71</td>
</tr>
<tr>
<td>$\alpha$-Monocerotids (246 AMO)</td>
<td>11/15 → 11/25</td>
<td>Nov 21</td>
<td>239.32°</td>
<td>117°</td>
<td>+01°</td>
<td>65</td>
</tr>
<tr>
<td>Nov. Orionids (250 NOO)</td>
<td>11/13 → 12/06</td>
<td>Nov 28</td>
<td>246°</td>
<td>91°</td>
<td>+16°</td>
<td>44</td>
</tr>
</tbody>
</table>

Four minor showers to choose from this month – appreciate our November skies and try to see some meteors! For more info: Thomas Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.
Treasurer’s Report

by Peter Besenbruch

Cash Flow - 09/10/2018 to 10/09/2018

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Balance</td>
<td>1589.42</td>
</tr>
<tr>
<td>Money into selected accounts comes from</td>
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</tr>
<tr>
<td>Membership - Electronic</td>
<td>$100.00</td>
</tr>
<tr>
<td>Membership - Family</td>
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</tr>
<tr>
<td>Money In</td>
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</tr>
<tr>
<td>Money out of selected accounts goes to</td>
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</tr>
<tr>
<td>Difference</td>
<td>$102.00</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>$1691.42</td>
</tr>
</tbody>
</table>

Thanks to all the people who renewed or joined. Nice to have you. Money collected for the calendars will show up in next month’s report.

On an unrelated topic, the past two (August and September) club star parties have had some very good viewing conditions in spite of an unfavorable weather forecast. Turnout was small. That’s a shame, as we not only got to enjoy the summer milky way, we also got our first good Mars views. Saturn and Jupiter were both wonderful.

(Continued from page 1) Annual Potluck in December Club Meeting

I am writing this as your outgoing Astronews editor and as this is the last opportunity to comment on our recent tradition of holding potluck dinners at our December club meeting I would like to say that our potluck dinners have been the best I have ever experienced. Back in the late 60s I visited the UC Berkeley campus and wandered about the campus buildings housing the departments that interested me. One department stood out from all the others, the astronomy department. The joie de vivre was palpable. It almost had a party atmosphere. Why it is that people who have their gaze fixed upon the heavens should be so good at living a good life here on Earth has been a bit of a puzzle, but I think the child like sense of wonder that we all had towards the cosmos as children was never lost by those who went into astronomy. This is particularly true of amateur astronomers. So let’s share our joie de vivre and our out of this world culinary skills and have a spectacular Potluck at the December 4 club meeting. I will mention details of why I need to step down in a later Astronews.
If you see a slow, bright meteor, that’s from the Taurid meteor shower. The Taurids radiate from the nearby constellation Taurus, the Bull. Taurids are active from Sept. 10 through Nov. 20, so you may see both a slow Taurid and a fast Orionid piercing your sky this month. You’ll be lucky to see five Taurids per hour on the peak night of Oct. 10.

You can also still catch the great lineup of bright planets in October, with Jupiter, Saturn and Mars lining up with the Moon again this month. And early birds can even catch Venus just before dawn!

You can find out more about International Observe the Moon Night at https://moon.nasa.gov/observe.

This image shows some of the features you might see if you closely observe the Moon. The stars represent the six Apollo landing sites on the Moon. Credit: NASA/GSFC/Arizona State University (modified by NASA/JPL-Caltech)
The α-Monocerotids are not favorably placed with respect to the Moon this year, so the meteors may be a challenge to view. Full Moon is two days from the peak of the shower. Photo credit: www.seti.org