

# Saskatoon Skies

The Newsletter of the Saskatoon Centre of the Royal Astronomical Society of Canada

Vol. 50, No. 6

June 2019



Another stunner from Colin Chatfield. Taken near Pine Cree Regional Park in mid May.



## Saskatoon Centre

The Royal Astronomical Society of Canada  
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Saskatoon, SK S7N 4J8

### WEBSITE:

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To view *Saskatoon Skies* digitally,  
see our website:  
<http://www.usask.ca/rasc/newsletters.html>

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# MEMBERSHIP? JOIN TODAY!

**Regular: \$85.00 /year**

**Youth: \$45.00 /year**

**Family: \$80/year**

The Saskatoon Centre operates on a one-year revolving membership. You will be a member for the next 12 months no matter when in the year you join. Members are encouraged to renew early to avoid disruption in publications. Renew through the National Office at <http://www.rasc.ca/join-us>

## Benefits of Membership in the Saskatoon Centre

- knowledgeable & friendly amateur astronomers
- use of the Sleaford Observatory
- use of the U of S Observatory (after training)
- Saskatoon Skies Newsletter
- Observer's Handbook
- Journal of the RASC (electronic format)
- SkyNews Magazine (bimonthly)
- borrow the Centre's Data Projector to give astronomy outreach presentations – contact Les Dickson at [astrochem@sasktel.net](mailto:astrochem@sasktel.net)
- rent the Centre's Telescopes  
<https://www.usask.ca/rasc/telescopes.html>
- discounts to Sky & Telescope Magazine\*
- use of the Centre library

## U OF S OBSERVATORY

The U of S Observatory is open to the general public every Saturday of the year. Admission is free. The observatory is located on campus, one block north of the Wiggins Avenue and College Drive entrance. On clear nights, visitors may look through the vintage 6-inch and tour several displays. Current events are recorded on the Astronomy Information Line at 306-966-6429.

### Observatory Hours:

January – February	7:30 – 9:30 pm
March	8:00 – 10:30 pm
April – August	9:15 – 11:45 pm
September	8:30 – 11:00 pm
October – December	7:00 – 9:30 pm

## SASKATOON CENTRE'S MAIN OFFICERS:

**President** – Daryl Janzen  
**Vice-President** – Jim Goodridge  
**Secretary** – Marcel Müller-Goldkuhle  
**Treasurer** – Norma Jensen  
**National Council Rep** – Chris Martin

Bottle Drive &  
Canadian Tire \$  
By Les Dickson

If you cannot attend a meeting but would like to donate your Canadian Tire money please email me at [astrochem@sasktel.net](mailto:astrochem@sasktel.net)

LIGHT POLLUTION  
ABATEMENT  
WEBSITE AT:  
[www.ras.sk.ca/lpc/lpc.htm](http://www.ras.sk.ca/lpc/lpc.htm)

**Newsletter Editor** – Kris Ohnander, Colin Chatfield

**Copy & Collate** – Les & Ellen Dickson

**Labels & Temps** – Mark de Jong

**Web Posting** – Gord Sarty

Saskatoon Skies is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 100 copies per issue. Saskatoon Skies welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science material. Submissions should be sent by e-mail to the editor at [krisohn@gmail.com](mailto:krisohn@gmail.com) in msword or text format. Images: any format, less than 30MB, sent by e-mail as attached files. **Deadline for submission of all articles for an upcoming issue is the first Friday of the month!**

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# RASC CALENDAR OF EVENTS

<b>June 17</b>	<b>RASC General Meeting</b>	Daryl Janzen
<b>July 5-7</b>	<b>Alberta Star-BQ Star Party</b>	<i>Info Online</i>
<b>July 27</b>	<b>Observers Group at Sleaford</b>	Larry Scott
<b>August 12</b>	<b>Perseid Meteor Shower</b>	<i>Info Online</i>
<b>August 28 – Sept 2</b>	<b>Saskatchewan Summer Star Party</b>	Rick Huziak
<b>September 16</b>	<b>RASC General Meeting</b>	Daryl Janzen

For a complete list of club events, please visit: <http://www.usask.ca/rasc/activities.html>

## June RASC General Meeting

for all members and guests, Room 175,  
Physics Bldg. University of Saskatchewan

**Join us on June 17, 2019**

**Presentations:**

### ***What's in the Sky this June? – Marcel Müller-Goldkuhle***

A summary of events you can observe over the next month.

### ***The AAVSO 10-Star Tutorial – Jim Goodridge***

Jim will take you through the American Association of Variable Star Observers (AAVSO) 10-Star Tutorial program that teaches observers how to start observing variable stars. The program reviews how to find and identify variables stars, how to make a visual measurement of their brightness, and how to report your observations to the AAVSO International Database. Variable star data is used in for professional and amateur astronomical research and for education. This talk is a preview to the same workshop that Jim will give at the SSSP.



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Mathematical Sciences

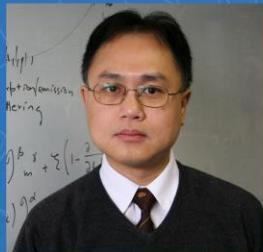
## PIMS - PUBLIC LECTURE

# KINWAH WU

Wednesday, July 10, 2019  
07:30 am - 08:30 pm

Room 1130, Health Sciences, Wing E  
University of Saskatchewan

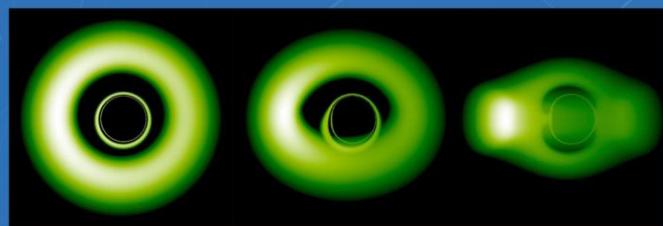
## SEEING BLACK HOLES WITH LIGHT AND PARTICLES



**Dr. Kinwah Wu**  
Chair of Theoretical Astrophysics  
Mullard Space Science Laboratory  
University College London, U.K.

### Abstract

The black hole is a prediction of Einstein's theory of gravity. A black hole has at least two essential features, a singularity and an event horizon. Although the idea of a black hole has been widely accepted in the astronomical community, it is only recently that the existence of black holes has been directly verified by the detection of gravitational waves from black hole mergers by LIGO/VIRGO and through the synthetic imaging of the supermassive black hole in the M87 galaxy by the Event Horizon Telescope. While a black hole's gravity lenses light, it also lenses particles. Thus, we can also see black holes by non-electromagnetic means. In this talk I will discuss how we study the space-time around black holes using light and how we may also study the more general aspects of black holes using relativistic particles.



WEBSITE: [HTTPS://WWW.PIMS.MATH.CA/SCIENTIFIC-EVENT/190710-PLCRASC](https://www.pims.math.ca/scientific-event/190710-PLCRASC)



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# Minutes of the May Meetings

— *Marcel Müller-Goldkuhle*

## Minutes of the Executive Meeting, May 13, 2019

**Attendees:** Daryl Janzen, Jim Goodridge, Rick Huziak, Les Dickson, Ellen Dickson, Patricia Gakis, Ike Thiessen, Chris Marten, Darrell Chatfield, Marcel Müller-Goldkuhle

Meeting called to order by Daryl Jensen at 7:08 PM

- Minutes: Approval of the minutes from the March 18 Executive Meeting:  
Motion by Rick, seconded by Marcel, approved with all in favour.
- Treasurer: No update.
- YAC: Plan to visit the U of S Observatory in the next meeting on Mon May 27.
- 10" Scope: Alan Duffy proposes to buy the EQ6 mount. Mount is damaged and needs repair.  
Type of the OTA to be clarified. To be discussed, if it makes sense to buy a new mount or to sell the OTA individually.
- Handout Material: Moon Gazer Guides and Star Wheels have been received. SkyNews planned to be ordered in June. SkyNews are not just for the SSSP, but also for General Outreach, therefore they should be ordered soon.
- Display Banner: Pictures for Banner to be sent to Rick. Maximum of five per Individual.
- SSSP: The SSSP website has been updated. 1 Clinic is still to be filled. Pins & Shirts are on the website.
- Projector: Motion by Marcel, seconded by Jim to give Less Approval to buy a projector and spare light bulb for up to \$ 1,600. Approved with all in favour.
- Sleaford: SaskPower have revised their plans for the installation of power poles. Plan is to have 1 pole north of the school house and 1 90m east from there. Execution is planned for late 2019/2020. Discussion within the Sleaford Committee needed to discuss further items.
- RASC GA: Les gave an update about the costs for attending the GA. Motion by Jim, seconded by Chris to cover up to \$500 of Les' costs for attending the GA by the Club. Approved with all in favour. Discussion couldn't be finished due to lack of time, further discussion planned for the June meeting.

Meeting adjourned at 8:02 PM.

## **Minutes of the General Meeting, May 13, 2019**

Meeting called to order by Daryl Janzen at 8:15 PM.

Minutes: Approval of the minutes from the March 18 General Meeting:  
Motion by Ellen, seconded by Les, approved with all in favour.

Activity Reports: Club members received good response from the public for Random Acts of Astronomy.  
Rick performs training of Staff from Dark Sky Preserves.  
Plan to set up telescopes at the North-East-Swale Firefly Walk on Fri May 24.  
Event at the Walter Murray High School at which communication with the ISS is planned. Date to be announced.  
The next Random Act of Astronomy is planned in June.  
Jim suggests offering newbies to walk them through the Explore-the-Universe program. Idea is to have 2 events/month, one at Sleaford, one at the U of S Observatory.

Meeting adjourned at 8: 45 PM, followed by presentations.

Presentations: Marcel Müller-Goldkuhle: The May/June Night Sky.  
Ashley Stock: Designing Radio Receiver for the 8.5m Radio Telescope.  
Riley White: The SkyNet Robotic Telescope Network.

End of the presentations at 10:00 PM.

Next General Meeting on June 17.

### ***Announcing the “Visual Observing for Beginners Section” for RASC Saskatoon Centre – Jim Goodridge***

Starting in September 2019 I will be leading a group for people beginning visual observing. We will meet after our regular RASC meetings end, around 9:30 and have an observing session or talk at the campus observatory which will wrap up around 11:30. We will also meet at Sleaford during the regular observer's group. The group will focus on doing two RASC observing programs: "Explore the Universe"; and "Explore the Moon". We will be using both telescopes and binoculars. If Sleaford is clouded out for the observer's group on a given Saturday, then we will do a talk at the observatory during the open house. There are no fees, but participants will have to be either members of RASC or students of the U of S enrolled in an astronomy course (spouses or significant others will also be allowed/encouraged to participate)

# Sleaford Skynet Robotic Telescope Project

— Daryl Janzen

Visitors to Sleaford Observatory are sure to notice some recent construction that has taken place. Craig Gavelin (U of S), Darrell Chatfield (RASC) and I put up a chain-link fence this past week around the U of S roll-off, which will serve as part of the safety system for the robotic operation coming later this summer. Mr. Gavelin is an Engineering summer student who will be working with me and Scott Noble from Engineering to tie together the roll-off controller (MaxDome II), cloud sensor (Boltwood II), and safety system for the robotic operation.

The next phase of construction planned for this project will see: i) a power pole erected at the south end of the property with an RF link to provide internet to the site (including Wi-Fi!), ii) a mast erected to the west of the roll-off, to mount the cloud sensor and IP cameras that will monitor the roll-off and the site entrance, and iii) an upgraded chain-drive for the roll-off to ensure that the roof moves on and off without the current need for human coaxing.

Much of this construction is planned to take place this June, to prepare the roll-off for the arrival this summer of the mount (PlaneWave L-500) and camera (FLI ML4710 broadband with CFW-3-20) we have purchased to accompany the OTA that is being repurposed from Skynet's PROMPT telescope array in Chile (16" RCOS Carbon Truss).

Any questions, concerns, or ideas for future projects to better utilise the two remaining unused piers in the roll-off should be sent to [daryl.janzen@usask.ca](mailto:daryl.janzen@usask.ca).



[Left] Sleaford U of S Roll-off with new chain-link fence



[Above] James McGregor (left) and Ted Toporowski (right) from the U of S Physics Machine Shop unpacking Skynet's 16" OTA on its arrival from Chile in April 2019

## Supporting the Grasslands Dark-Sky Preserve

— *Rick Huziak*

As part of the effort to maintain dark skies and educate both Parks and the public on the importance of darkness in the environment, we have done a yearly series of training and public star-nights at Grasslands National Park Dark-sky Preserve since its certification as a DSP in 2009. This outreach is organized by Chris Beckett (Regina). Chris recruits three or four others to help. Because the sky is likely the darkest accessible sky in North America (I've recorded 8.4 naked eye skies), we usually take an extra day or two beyond our commitments just to observe.

So, on May 10, I made the 4.5-hour drive down to Grasslands West Block, near Val Marie, SK to meet Chris and Mike O'Brien. We had planned to do some observing the night before the Parks interpreter and staff training session. Just as we pulled in, a large thunderstorm rolled in, but after that blew through, we were able to do some great observing in a sky where every dark cloud in the Milky Way looks three-dimensional. I spent much of my time to chase down some neglected variable stars while Mike and Chris exchanged telescopic and binocular observations. We all watched Jupiter and Saturn rise above the hills and I caught the Great Red Spot, which was very pink and easy to see.

The next day, we did the staff training session to a crowd of 20 staff and interpreters. Grasslands does an active astronomy program, so the training involved bringing new employees up to speed on the dark sky preserve, basic astronomy and telescope use. Chris did two talks: one on the history of astronomy and how observing the sky evolved over the centuries, and one on star hopping, what can be seen and how to run a public star night. I did a talk on the 15-years of dark-sky preserves in Canada (it is the 10<sup>th</sup> anniversary of Grasslands), emphasizing how incredible the Grasslands sky is, and provided about two dozen ideas for nighttime outreach programming. Once the sky got dark, I did an hour-long naked eye tour of the sky showing the signs of the zodiac, how to find other constellations, constellation legends, stories of the bright stars, and naked-eye deep sky objects.

The sky, throughout the training was a little soft, but as it got past midnight, the sky cleared nicely. It was encouraging that the interpreters that were going to do the hands-on programs stayed with us throughout the night, learning to find objects and use the telescopes until morning twilight finally defeated us.

We returned to Grasslands on June 1<sup>st</sup>, this time to put the training into practice. This time, we were at Rock Creek campground in Grasslands East Block, about one hour's drive southwest of Assiniboia, SK. Rock Creek is the more remote side of the Park, but last year, an expanded campground started to attract larger crowds. Chris, Mike and I were joined by Shane Ludke and Greg Simpson (Regina RASC) to conduct the public star-night and some talks. Other members of the Regina Centre (Ian Sloman, Paul Meyer and Dennis Pilon) also decided to come camping at the park for the weekend.

We had excellent attendance with 85 or so campers attending our presentations. Again, Chris and I spoke. Chris did a presentation of basic astronomy and what would be visible in the sky tonight. I did a talk on the 10<sup>th</sup> anniversary of the Grasslands DSP, the importance of dark skies for the animals of the park, and again emphasizing how amazing the skies is here. I did a second talk about how the image of the black hole in M87 was done. Unfortunately, forest fire smoke from Alberta limited what we could see, but we did run a decent star party from 10:30 pm until the last of the stragglers left after 2:30 am. We were able to see brighter dark-sky objects and again were treated to great views of Jupiter and Saturn.

We will be doing the last of the outreach programs for Grasslands by returning to the West Block on July 27th. Star nights in West Block often attract 150 to 200 people. We are looking forward to that event.

In the May *Saskatoon Skies*, I wrote the article *Outreach Opportunities in Saskatchewan Parks*. Saskatchewan has 53 provincial parks, two national parks, two dark-sky preserves, one nocturnal preserve and umpteen regional parks. The opportunity to do astronomy public outreach (and often to get paid for this) is endless. Tying the darkness of the sky to the nature of parks is so important. The parks and the campers really appreciate our efforts. If you live near a park, make the effort to contact their managers and offer to do an astronomy program for them. It is a lot of fun!

# Observing Clubs and Certificates

Join the Club! Observe all 110 Messier, 110 Finest NGC, 400 Herschel I or II, 140 Lunar, 154 Sky Gems or 35 Binocular objects, or Explore the Universe and earn great OBSERVING CERTIFICATES!

## MESSIER CLUB

### Certified at 110 Objects:

R. Huziak, G. Sarty, S. Alexander,  
S. Ferguson, D. Chatfield, T.  
Tuomi, L. Scott, G. Charpentier,  
B. Johnson, L. Dickson, B.  
Burlingham, Norma Jensen

Ron Waldron	108
Marcel Müller-	94
Goldkuhle	
Wade Selvig	75
Wayne	43
Schlakohl	
Ellen Dickson	34
Graham	9
Hartridge	

## Chatfield BINOCULAR CERTIFICATE

### Certified at 35 to 40 Objects:

T. Tuomi, R. Huziak

Jim Goodridge	12
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## FINEST NGC CLUB

### Certified at 110 Objects:

R. Huziak, G. Sarty,  
D. Chatfield, T. Tuomi

Larry Scott	110
Scott Alexander	97
Norma Jensen	83
Sandy Ferguson	23
George	13
Charpentier	

## EXPLORE the UNIVERSE

### Certified at 55 to 110 Objects:

T. Tuomi,

Wayne	55
Schlakohl	
Jim Goodridge	35

## Isabel Williamson Lunar Observing Certificate

### Certified at 140 Objects:

T. Tuomi, N. Jensen

## HERSCHEL 400 CLUB

### Certified at 400 Objects:

R. Huziak, D. Chatfield, T. Tuomi

Gordon Sarty	251
Scott Alexander	117
Larry Scott	45
Sandy Ferguson	18

## HERSCHEL 400-II CLUB

Darrell	400
Chatfield	
Tenho Tuomi	378
Rick Huziak	246

## LEVY DEEP-SKY GEMS

### Certified at 154 Objects:

Tenho Tuomi	150
Darrell	70
Chatfield	



The Messier, Finest NGC and David Levy's Deep-Sky Gems lists can be found in the *Observer's Handbook*.

The Explore the Universe list is available on the National website.

On-line Messier and Finest NGC lists, charts and logbooks: <http://www.rasc.ca/observing>

On-line Herschel 400 List: <http://www.astroleague.org/al/obclubs/herschel/hers400.html>

Binocular List is at: [https://www.usask.ca/rasc/Chatfield\\_Binocular\\_List.pdf](https://www.usask.ca/rasc/Chatfield_Binocular_List.pdf)

"Isabel Williamson Lunar Observing Program Guide:

<http://www.rasc.ca/sites/default/files/IWLOP2015.pdf>

Program details can be found at: <http://www.rasc.ca/williamson/index.shtml>