

New Braunfels Astronomy Club

Texas, USA

April 18th, 2019

238th Meeting

Larry's

Celestial Calendar & Newsletter

April 18th to May 16th, 2019 261st Edition

Thank you Mark deKiewiet for the March Newsletter!

The Moon and Planets Dance

The Lyrids Fight a Bright Moon (04/23)

The Eta Aquariids Avoid the Moon (05/06)

The Moon Cuddles with the Beehive (05/10)

Observer's Highlight Calendar for Clear Skies

Month Date Time/Direction Event

Month	Date	Time/Direction	Event
April	19	6:12 am CDT	Full Moon
April	22-23	After midnight; E	The Lyrid meteor shower peaks but a bright Moon interferes
April	23	Pre-dawn; SSW	Jupiter and a waning gibbous Moon get tight in Scorpius
April	25	Pre-dawn; S	Saturn and a waning gibbous Moon get close in Sagittarius
April	26	5:18 pm CDT	Last Quarter Moon
May	4	5:46 pm CDT	New Moon
May	6	Pre-dawn; E	The Eta Aquariid meteor shower (from comet Halley) peaks
May	6-8	Dusk; WNW	A waxing crescent Moon climbs past Aldebaran and Mars
May	10	After sunset; W	The waxing crescent Moon and M44 (The Beehive) get close
May	11	8:12 pm CDT	First Quarter Moon
May	11-13	After sunset; S – high	The waxing gibbous Moon slides along southern Leo

Solar System Roundup

- ✚ **Mercury** is a morning “star” but very low and not a good target until late May
- ✚ **Venus** is a morning “star”, and brilliant of course. It shares the early morning sky with Mercury for a bit in late April, but both are low in the sky
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** dances with Saturn, Jupiter, Aldebaran, Regulus and Antares
- ✚ **Mars** is in the west-northwest, sets early
- ✚ **Jupiter** is visible in pre-dawn hours, climbing higher in the southeast and paring with the Moon on April 23rd
- ✚ **Saturn** is visible in the early morning southern sky, paring with the Moon on April 25th
- ✚ **Uranus** is not a good target now
- ✚ **Neptune** is not a good target now
- ✚ **Comet(s)**
 - C/2017 M4 (ATLAS) at 13th magnitude is a challenge, in Scorpius
 - For fun, check out NGC 1931 in Auriga. It’s a comet imposter. It’s 1° west of open cluster M36. Do it quickly as Auriga is heading to the western horizon
- ✚ **ISS Viewing for New Braunfels (works for Canyon Lake too). After 5 am and before midnight.**

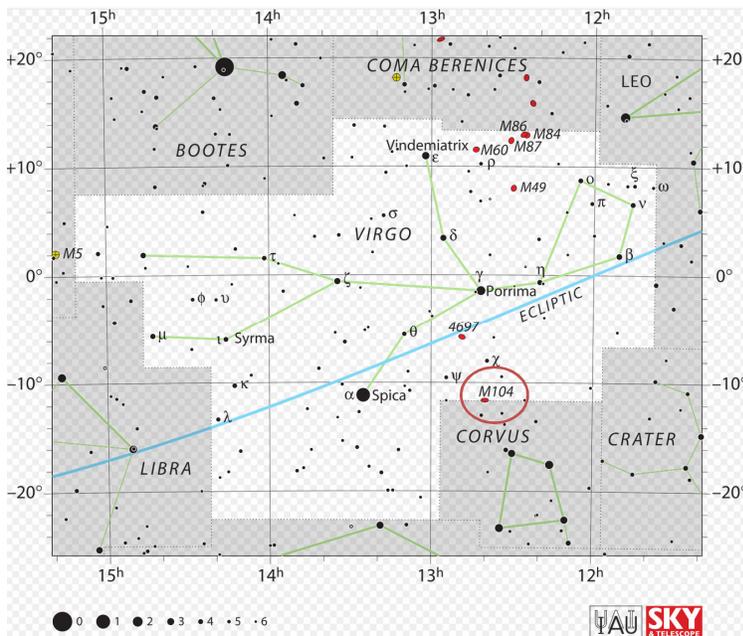
Date	Start Time	Start Loc	Max Alt °	Travel
04/16	06:16	S	24	ENE – horizon Get close to Venus and Mercury
04/26	06:12	SW	88	NE
04/28	06:08	W	28	NE – horizon
04/30	06:03	WNW	12	NNE – horizon

My Observing Pick: M104

M104 is also known by the name “Sombrero Galaxy” due to its loose resemblance to a Mexican Sombrero. It is a lenticular galaxy, like a spiral galaxy but without large scale spiral arms. We see it nearly edge on so a distinct dust lane bisecting its bulge is visible and this makes M104 a real treat to see in larger telescopes.

M104 was discovered by Pierre Mechain in 1781, a contemporary and collaborator of Charles Messier. Messier made a note of it and five others but failed to put them into his manuscript for publication. Consequently, they were not officially M objects until Nicholas Camille Flammarion found his note and had the additional objects put into the Messier catalog in 1921.

Located in Virgo, M104 is about 30 million light years from us and shines at an apparent magnitude of +8, bright enough to be seen in most telescopes. In my 4” refractor it is a dim, elongated smudge with a fuzzy line bisecting it lengthwise. The first time I saw it in a telescope was with a 20” reflector and I almost fell off the ladder. Spectacular!



Name	Object Type	Mag	Location/Information	Description
M104	Galaxy	8	About 10° west-southwest of Spica	Edge-on lenticular galaxy

Black Hole, in the News

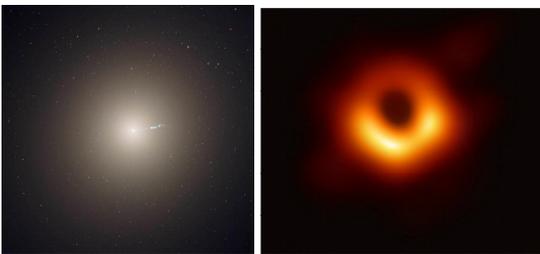
The concept of something so massive that it doesn't shine because light cannot escape its gravity was first proposed by Englishman John Michell, way back in 1784. He called it a "dark star". The idea didn't gain much traction however and it faded until, did you guess it?... Albert Einstein's theory of relativity was published. Relativity has equations that describe conditions for a black hole that Einstein did not solve. He thought the concept somewhat absurd. Yada, yada, yada...many physicists later (Schwarzschild, Eddington, Finkelstein, Lemaitre, Chandrasekhar, Tolman, Oppenheimer, Volkoff, Pauli, Penrose, Hawking, and many others) we have a general understanding of this phenomenon called a black hole.

While credit has been given to physicist John Wheeler for coining the term 'black hole' in 1967, it had been used by others previously, most notably in the early 1960's by physicist Robert H. Dicke. He compared the phenomenon with a prison cell in Calcutta called the Black Hole, where prisoners entered but never left...alive.

Let's look at the conditions that cause a black hole. Easy, got to have a star, but not just any star. It has to be really, really massive. The concept is simple, the stars gravity becomes stronger than the energy required to keep everything from collapsing. After a few million years or so of living large, this monster star no longer produces enough fusion energy to stop gravity from crushing itself into oblivion.

A black hole is oblivion. It is a bubble of strange space around what we call a singularity. A singularity is a point of infinite gravity and density with no known or measurable volume. The bubble is composed of space and time (spacetime) so warped by infinite gravity that anything within, including light, just follows the warped/looped spacetime. It's trapped. Oblivion. The very edge of this bubble is called its event horizon, the point of no return for anything entering, bye-bye. No known power can get you out once you enter. While black holes do not emit light, they are visible via the cloud of luminous stuff, sometimes even stars, in orbit around them.

The recent image by the Event Horizon Telescope (EHT) team of M87's black hole is a technological feat. Six radio telescopes from around the globe were synchronized to get this shot. The M87 (a giant elliptical galaxy) black hole is a monster, billions of times the mass of our Sun. Our Milky Way galaxy, as with most galaxies, has a super massive black hole too. Ours is about 4 million times the mass of our Sun.



Left: M87 Hubble Telescope image Right: M87 EHT image

Coming up: OUR 239th ASTRONOMY CLUB MEETING

Thursday, **May 16th**, 2019, from 7 – 9:00 p.m., held in the conference room of TJ's restaurant on Loop Road (337). Have dinner, snack, dessert, and/or a beverage if you like. The New Braunfels Astronomy Club can be reached at www.astronomynbtx.org

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