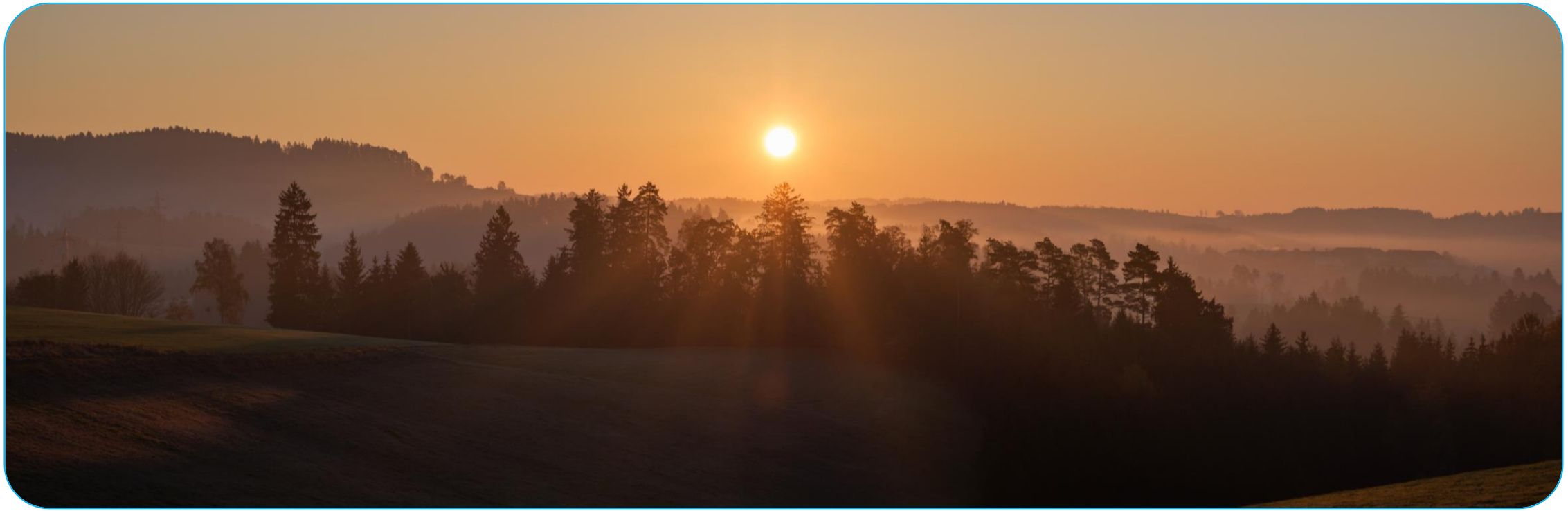


WELCOME TO "ATT - DIGITAL 2021"

Baader Planetarium

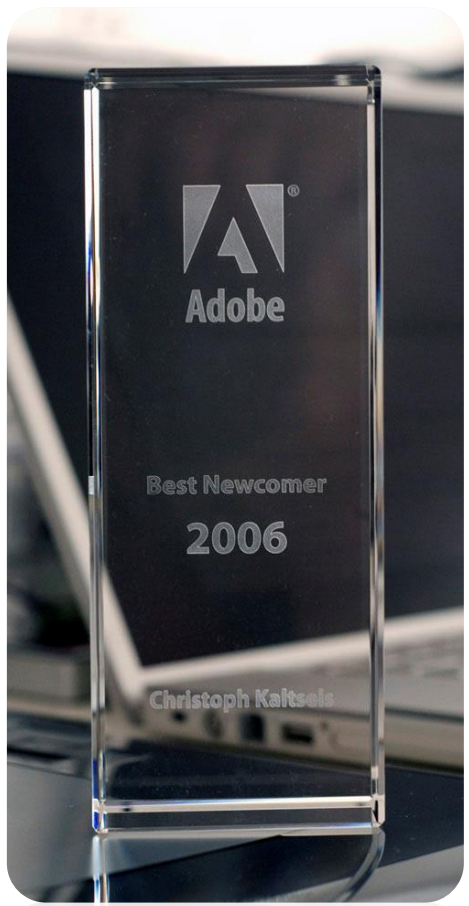
2021-05-08

WE FOUND THE WAY

NEW BAADER CMOS-OPTIMIZED (ULTRA) NARROWBAND AND HIGHSPEED FILTERS





SPEAKER: CHRISTOPH KALTSEIS

Today I will guide you through the next exciting minutes. My astronomy I have a lot of respect for this task, because I was involved in the exercises

Years - 2009 1st CEDIC.

TIME MACHINE

The beginning of a story in the year 1966

"The Baader School Planetarium"

Baader has been looking for 55 years of ways for perfect products . It all started in 1966 with Claus Baader - with his slogan "We found the way" - for the introduction of the Baader school planetarium - hence this company name to this day. Since then, Baader has repeatedly designed products that should last for long periods of time. It's been around for over 30 years of Baader solar film , since 45 years Baader observatory domes - and countless accessories-Products.

And the latest development I was allowed to accompany you from the beginning - and now after 2 years of intensive development work I can introduce you to the new, CMOS-optimized Baader Narrowband and Ultra-Narrowband filter , each with specially designed Coating systems for flat image angles up to a little over 10 degrees - and calculated separately for extremely wide image fields up to 16 ° Angle of incidence.

2021/05/08 - A DAY TO REMEMBER & LISTEN TOO!

- Photo technology has developed rapidly over the past few years and decades.
- Analog to digital - a gigantic step!
- Software and functions in it - understand!
- Computers and performance
- Industry standard in recent years with CCD
- New CMOS - extreme dynamics / resolution vs. CCD
- Optical design (spot field) / "noise floor"
- Significance in astronomy / hobby astrophotography?
- Conditions for admission ?!
- My own observatory - a great thing - I have to / want to do it shortly!

IC443 + IC 444 UNB f2 H-Alpha 3.5nm (22x 180s = **66min)**
[QHY 268M + UFC Tilter + RASA 11 f2.2] - [cold ice 2021]

CMOS OPTIMIZED

WITH LIFE-COAT™

with frontside REFLEX-BLOCKER™

IC443 / IC444 - UNB f2 H-Alpha 3.5nm + OIII 4nm [QHY 268M + UFC Tilter + RASA 11 f2.2] 135min [cold ice 2021]

I IMAGINE:

THE BAADER CMOS-OPTIMIZED (ULTRA) NARROWBAND AND HIGHSPEED FILTERS

1966 and 2021:
Today we have a similar situation - we worked hard for two years and the "feeling" here is like it was back then. For our new filters!

Technical details, transmission curves, of each filter from 300 - 1200nm are published on the Baader page for the filters!

HIGHLIGHTS OF THE NEW BAADER FILTERS!

Many details - in one incomparable product!

- Increased - improved contrast
- Ever narrower transmission ranges (nm)
- Reflex blockers™
- Coordinated half width (HWB) for each Filter category for a 1: 1: 1 weighting. As well as coordination with the new CMOS chips.
- Identical filter thickness to existing standards, with great care for parfocality / back focus.
- Blackened edges all around / reflections suppressive effect. (Filter wheels)
- Each individual filter is first polished then the Filter coated / tempered.
- Life-Coat: To provide an aging-resistant coating to enable for life - even in the most adverse environments.

Motivation & Thoughts:

In order to finally and inexpensively solve the problem of filters (filter prices!), Which are accused of creating unbearable halos when used in the immediate vicinity of corrective lenses

- in connection with the latest generation of CMOS chips.

Therefore I am introducing the four new Baader filter families!

WHICH FILTER? - FOR WHICH SYSTEM?

- Why 6.5nm and 3.5 / 4nm HWB?
- 6.5 nm narrowband filters, CMOS-optimized - for f10 to f3.5
- 6.5 nm f / 2 high-speed filters, CMOS-optimized - for f3.4 to f1.8
- 3.5 / 4 nm ultra-narrowband filters, CMOS-optimized - for f10 to f3.5
- 3.5 / 4 nm f2 ultra-high-speed filters, CMOS-optimized - for f3.4 to f1.8

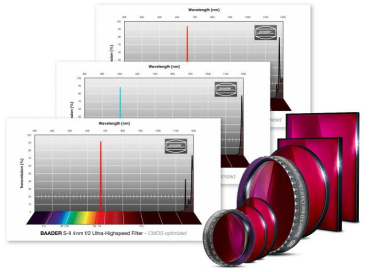
IC434 - UNB f2 H-Alpha 3.5nm [QHY 600M Pro-L + RASA 11 f2.2]
Exposed **39min [** cold ice 2021]
! Maximum test: 3min f2.2 = 6min f2.8 = 12min f4 = 24min f5.6!

Setup example and NM:
- Small refractor (up to 80mm f5): 6.5nm narrowband filter (f10 - f3.5)
- The production difficulties for f2 Ultra Narrowband Filters are 3 times greater than for regular 6.5nm filters
- The best solution for price / performance are the 6.5 nm filters!

These filters are marked as CMOS-optimized in order to distinguish them from the previous Filt

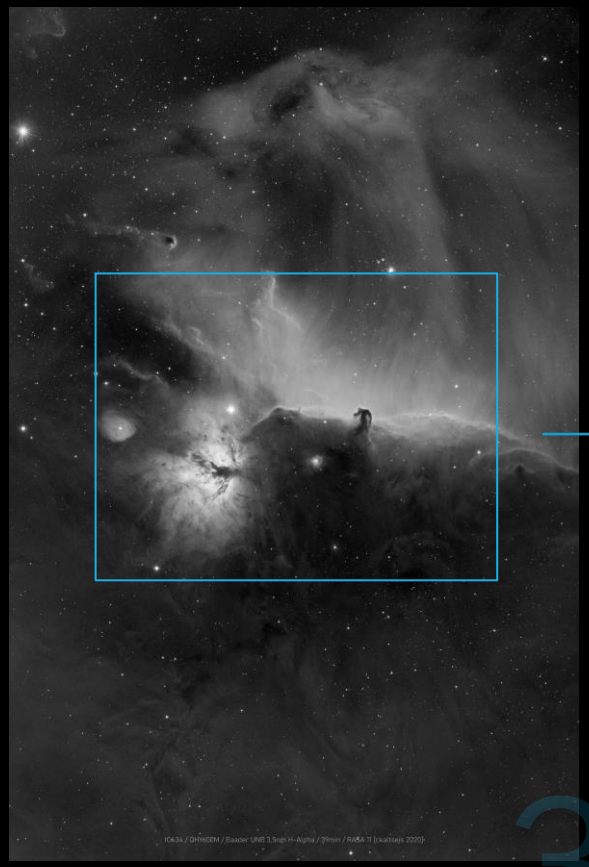
WHAT'S IN THE END?

EVERYTHING FOR THE ONE MOMENT!

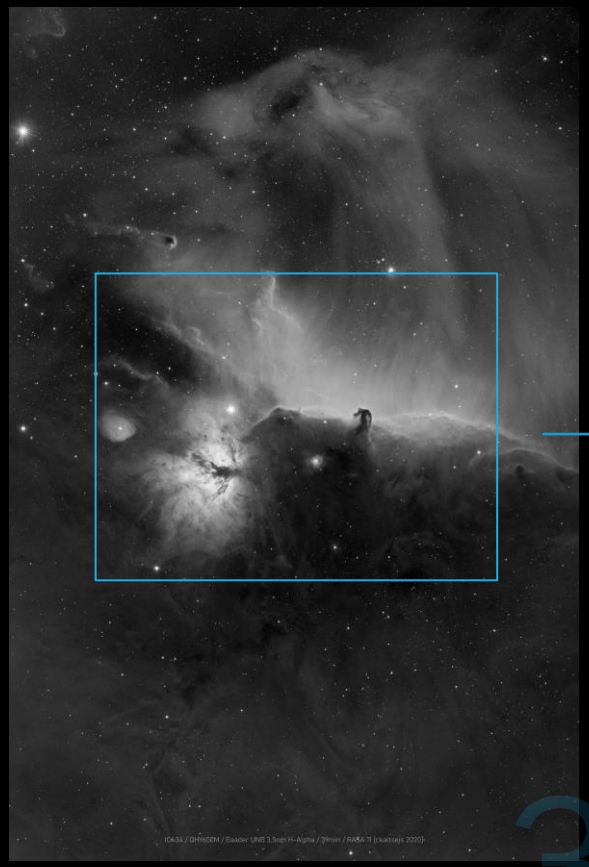


The result & picture!

IC434 - Horsehead Fog and Flame Fog
NEW UNB f2 H-Alpha 3.5nm
[QHY 600M Pro-L (Bin 1x1) + RASA 11 f2.2 + CGX
[Half moon] **39min / no flats used**



IC434 - Horsehead Fog and Flame Fog
NEW UNB f2 H-Alpha 3.5nm
[QHY 600M Pro-L (Bin 1x1) + RASA 11 f2.2 + CGX
[Half moon] **39min / no flats used**
Stars removed with StarNet

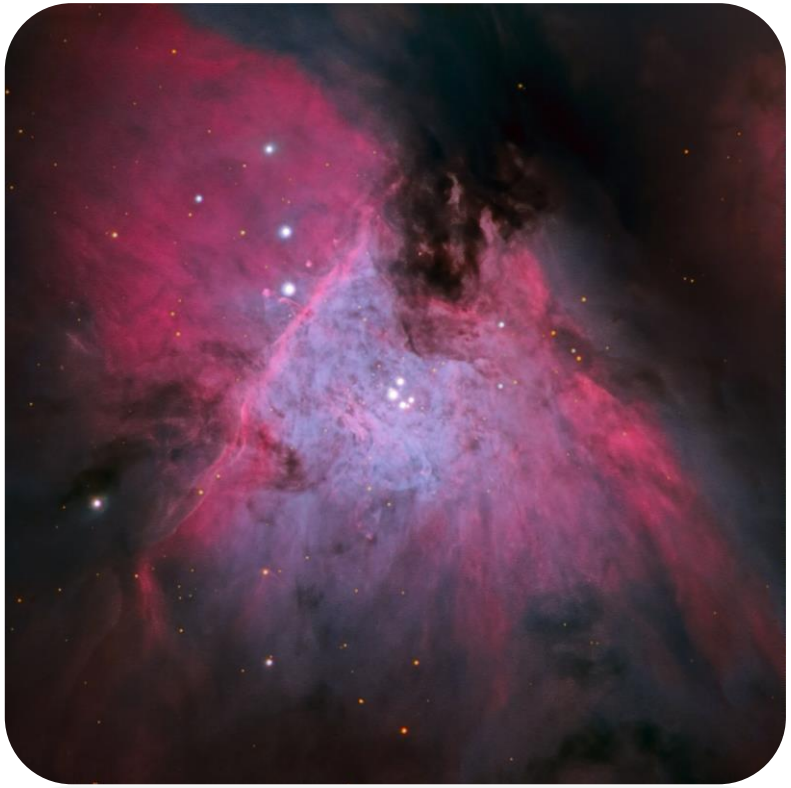


THE LAST 20 YEARS OR MORE?

What I experienced myself and my experience:

I have used many different telescopes in over 20 years until I found my optimal solution. Also in the
I have filter technology with me LRGB started and get totally crazy answers when I asked other manufacturers about reflexes. My conclusion was one Remuneration is not the same as remuneration and due to the sensitivity of the new CMOS and sCMOS cameras, the filter problem is taking on completely new dimensions.
I've spent an endless number of nights with all sorts of filters and these over and over again differentially compared to detect visible differences in blocking.
The highlight of the filter comparisons were then "Black box" Filter tests with the new Baader filters. Always new prototypes were my daily bread - although I didn't know what was behind them. In the tests I then assessed the "best" filter, which was then further developed.

My approach and claim:
"No manipulative image processing!?"



M42 "The Core" UHC – L + RGB
Andor Marana HDR / C14 EHD f11

With considerable investments, Baader is finally almost continuously from a prototype run from 2019 to now (mid-2021) ran into the next. Countless nights were spent under the stars, consisting of so many different coating systems on all four new filter families from a total of 84 new filters. After much back and forth, there is now a convincing result. the new Reflex-Blocker ™ - Coating systems work very satisfactorily and for one moderate price increase.

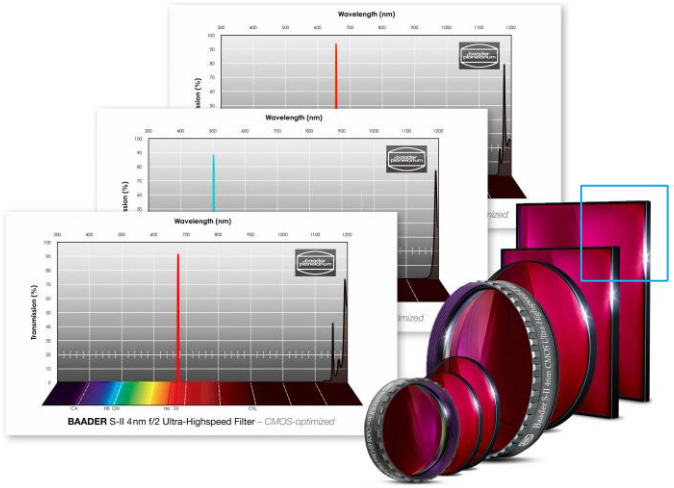
CRITICAL CONSIDERATION!?

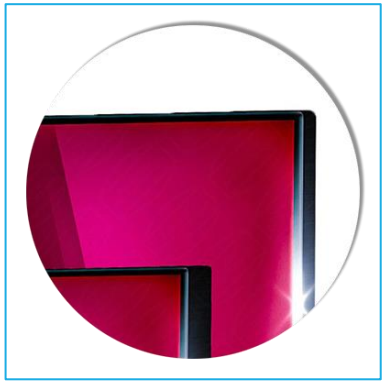
Effect:
Sensitivity - dynamics

- Auxiliary optics on the telescope?
- The last lens / surface and then the filter in front of the chip ...
- What is often the result? The filter is held responsible for the entire optical system!

IC1318 - SHO UNB H-Alpha 3.5nm / OIII 4nm / SII 4nm
[QHY 163M + RASA 8 f2] **180min [** cold ice 2021]

NEW, BETTER - FUTURE-PROOF!

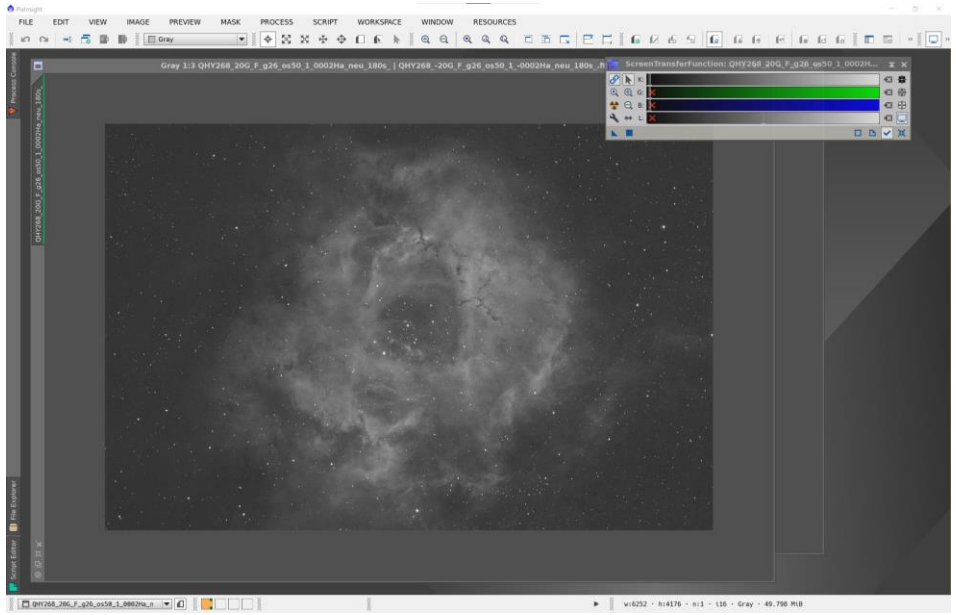




The New Black Edge

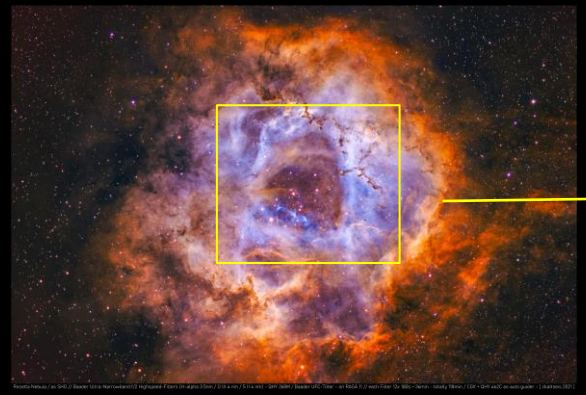
Of the **1mm blackened border attached to one side** serves not only to prevent moonlight or
Starlight falls on the edge of the filter and shines into the field as interference light, but that the edge also shows the side with the reflex blocker. In this way it is always immediately visible which filter page **must point to the telescope.**
There is no need to mark the edge with arrows!

- All standard diameters available, a total of 84 new filters
- Available as mounted and unmounted filters
- With a life coat guarantee for an extremely durable coating!
- The perfect combination on the RASA 8 in the Baader FCCT!



Control: NGC 2237-39 / STF PixInsight / QHY 268M / 1x180sec /
uncalibrated single image / without FLATS / without loss of brightness

NGC 2237-39 - Rosetta Nebula as BiColor
NEW UNB H-Alpha 3.5nm + OIII 4nm +
Baader UFC + UFC tilter
[QHY 268M (Bin 1x1) + RASA 11 f2.2 + CGX
118 min / no FLAT used / no vignetting visible



118min

CMOS OPTIMIZED

WITH LIFE-COAT™

with frontside REFLEX-BLOCKER™

In summary about the new Baader CMOS-optimized (Ultra) Narrowband and Highspeed Filters?
The next, important and correct step - NB .: All links in a chain must be equally strong!

IC1396
SHO
Baader UNB f2 H-Alpha
3.5nm / OIII 4nm / SII 4nm
[QHY 163M + RASA 8 f2 + Baader FCCT]
150min / no flat rates
[cold ice 2021]

CMOS OPTIMIZED

WITH LIFE-COAT™

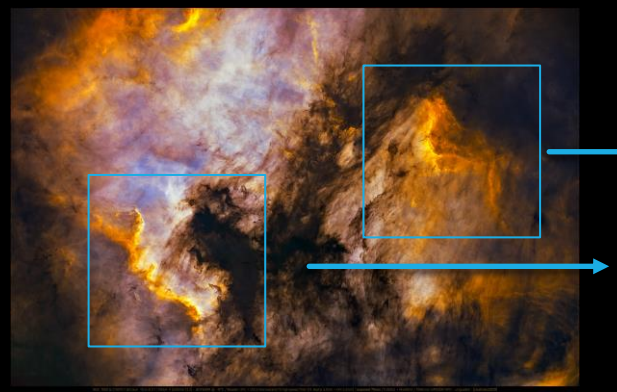
with frontside REFLEX-BLOCKER™

North America and Pelican Nebula
NEW UNB H-Alpha 3.5nm + OIII 4nm
[QHY 600M Pro-L (Bin 1x1) + RASA 11 f2.2 + CGX
In total **75min exposed**
no flats used

NGC 7000 & IC5070 / BiColor 1:0,5:0,5:1 / RASA 11 [620mm f2.2] - QHY600M @ -10°C / Baader UFC + Ultra Narowband f2 highspeed filter [H-Alpha 3,5nm + OIII 4,5nm] / **exposed 75min** (7x300s) + (8x300s) / 10Micron GM2000 HPS - unguided - [ckaltseis2020]

18th

North America and Pelican Nebula
NEW UNB H-Alpha 3.5nm + OIII 4nm
[QHY 600M EB = Pro-L (Bin 1x1) + RASA 11 f2.2 +
CGX exposed in total: **75min / no flats used**

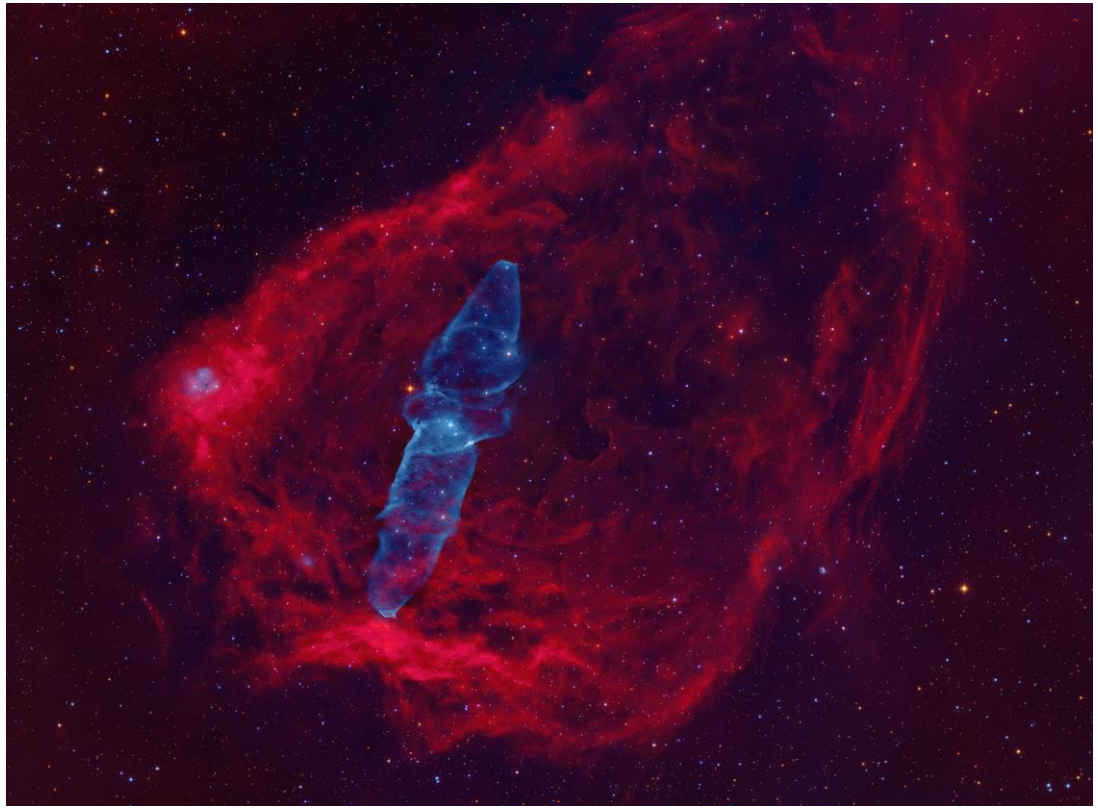


Tiefe und Signal - NB.: 5min bei f2.2 = 10min f2.8 = 20min f4 = 40min f5.6
Einzelbelichtung!

MORE BETA TESTERS & TESTING'S

Here is a customer review from another tester

from *Andreas Bringmann* be: Baader filter test



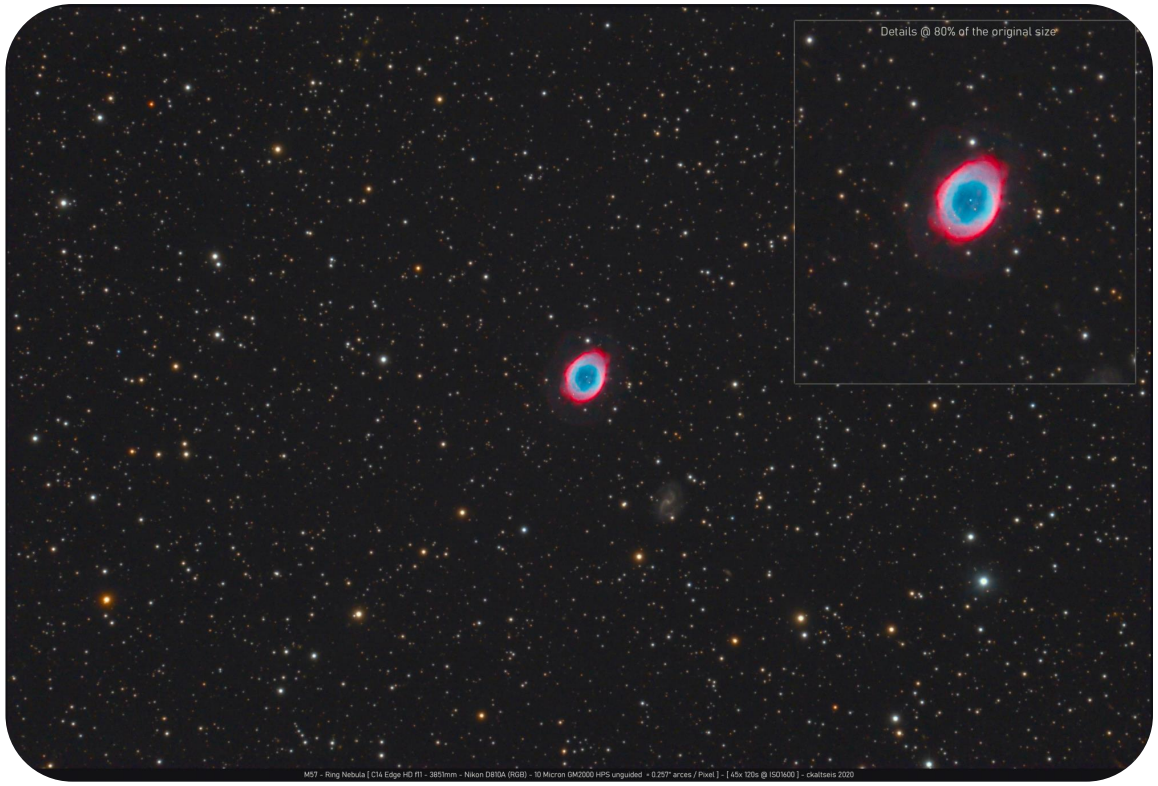
Ou4 and Nh2.129 © Andreas Bringmann

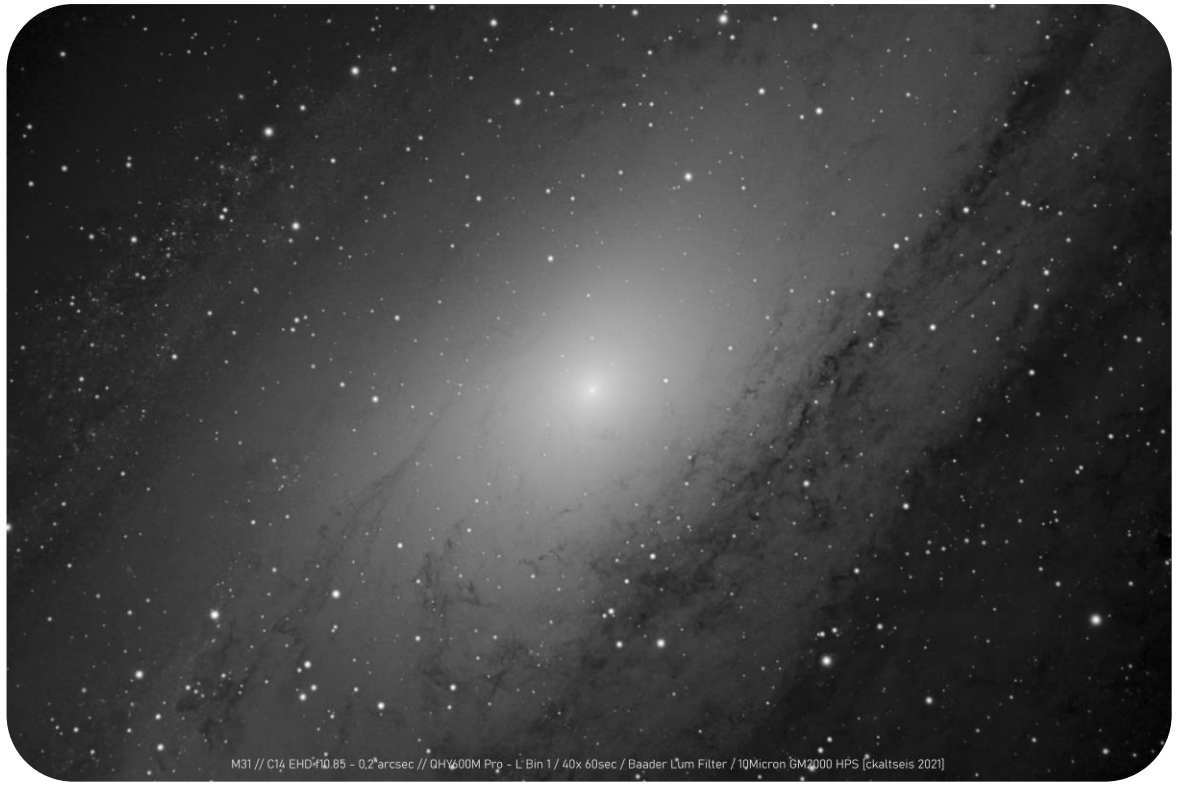
Blog posts from the Baader site Look here

- My first impression of the CMOS-optimized Baader filters - from *Julian Shroff (* can be found under the blog entries!)
- from *Ian Aiken* - IC 405 with the Baader f2 Ultra Narrowband H-Alpha Filter (Brotle Sky 7)

THE LINKS OF A CHAIN?

What is possible - if it is used correctly? With an EHD generation SC?
My C14 EHD f11 at 36.3 & 61.1MP
+ 10Micron GM2000HPS
Nikon D810A + QHY 600M Pro-L / QHY 268M - PH





36.3MP

baader planetarium

61.1MP

M31 // C14 EHD f10.85 - 0,2"arcsec // QHY600M Pro - L Bin 1 / 40x 60sec / Baader Lum Filter / 10Micron GM2000 HPS [ckaltseis 2021]

STAY TUNED - THIS IS COMING NEXT HERE!

CELESTRON RASA 8 + BAADER FCCT - PRESENTATION

For the QHY 294M and the QHY 268M

- Another highlight at the end and ideal with the new Baader UNB f2 filters on the RASA8!
- The Baader FCCT (F. filter C. hanger C. amera T filter) enables the QHY 294 and QHY 268 to be perfectly adjusted to the optical axis of the RASA 8.
- The FCCT is a special solution - **only for the RASA 8.** You can use it to change filters (unmounted: 31mm / 36mm / 2 inch), as well as fine-adjust the image position of the camera comfortably from the side in the shortest possible time without removing the camera for this adjustment to have to.
- The FCCT will be available in August 2021 - then all information will appear on the Baader website. Two FCCT versions only for QHY cameras are currently in production - one for QHY 174/163/183/290, and another version for QHY 294 and 268.

NEXT GEN? - THANKS VERY MUCH !

BY ASKING
"BAADER - ATT DIGITAL SESSION ROOM TO THE FILTERS FROM 16.30 - 17.00"!