

Horkheimer/O'Meara Journalism Award
Third place: Seth Fenderson

Seth completed fourth grade this year at Legacy Christian Academy in Broken Arrow, Oklahoma. He is a member of the Astronomy Club of Tulsa.

Seth will receive \$250 for his third-place finish, compliments of the Horkheimer Foundation. The title of his essay was "Mars 2020 Rover."



2020 MABEL STERNS NEWS-LETTER AWARD RESULTS

This purpose of this award is to recognize the newsletter editors across the Astronomical League family of societies who, on a regular basis, share essential information with their societies' members. These heroes are the main link for that information, often having to solicit articles near publication deadlines and selecting alternative articles when the needed number of articles is not available.

Suggested questions for judges to consider when evaluating the submissions included: Does it include meeting schedules and locations? Is the layout pleasing? Is the content pertinent to the club's membership? Is the newsletter of appropriate length? And, is the League logo on the front page?

The first-place winner receives a beautiful plaque recognizing this fine achievement.

The first-place finisher in the 2020 competition is **Bruce Bowman**, editor of the Indiana Astronomical Society's *News and Views*.

The *News and Views* issues perused for evaluation answered "yes" to most of the questions above. The newsletter was informative, attractively presenting much material from members. To read the current newsletter, visit the IAS website, iasindy.org.

Other top finishers:

Second place: **Mark Reed**, editor of the *News-*

letter, the member publication of the Shenandoah Astronomical Society, Middletown, Virginia.

Third place: **Jackie Richards**, editor of *Monthly Notices* of the Everglades Astronomical Society, Naples, Florida.

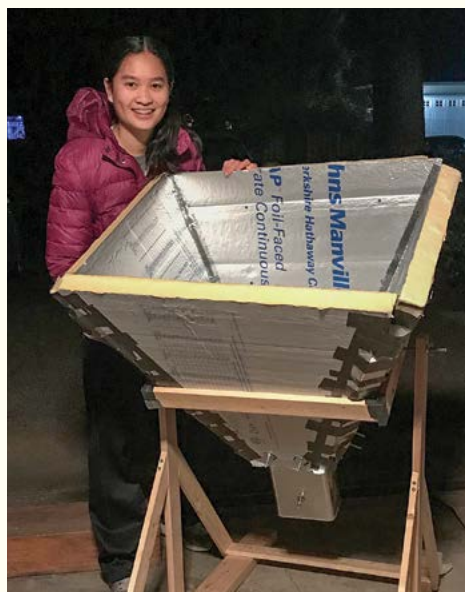
2020 NATIONAL YOUNG ASTRONOMER AWARD TOP FINISHERS

This award season has been much different, due to the COVID-19 situation. We postponed ALCon 2020 to the first week of August 2021 as ALCon 2021. As a result, top 2020 finishers for the National Young Astronomer Award (NYAA) will be offered the opportunity to attend ALCon 2021 to receive their plaques in person and give their presentations.

Thanks to Explore Scientific for its generous sponsorship of this program for many years. Each year the top two finishers are given a trip to the national ALCon and one of Explore Scientific's outstanding astronomical instruments. We had many excellent submissions this year. Thanks to all who participated.

NYAA Awards First place: Karen Lei

Karen is a rising senior at Saratoga High School in Saratoga, California. She became hooked on astronomy while a high school freshman, after looking through her father's telescope. The next year she started an astronomy club at her school, and she currently serves as president of the group.



The goal of her astronomy research project was to identify the unknown source of a detected 21 cm neutral hydrogen emission. As she explains, "Characteristics of the source, including right ascension and declination, brightness temperature, and vLSR (velocity relative to the local

standard of rest) were calculated and appropriate queries made in the astronomical database SIMBAD. These characteristics were compared against the 20 resulting objects that matched the initial criteria of hydrogen emission line, right ascension, and declination. The brightness temperature was then compared with the two objects that passed the previous criteria, and although the brightness temperature obtained from this research's data was higher than both that of FVW 173.0+0.0 and FVW 173.0+3.0, this can be explained by the large beamwidth of the homemade radio telescope since it could take a combined brightness value possibly from several different sources. Thus, it was reasonably concluded that the source of the weak hydrogen signal detected at 5h 40m 0s, 40° was from a combination of both FVW 173.0+0.0 and FVW 173.0+3.0."

Karen recently had the privilege of visiting Mount Wilson's 100-inch Hooker Telescope. She has studied the field of radio astronomy extensively. Outside of astronomy, she loves math and is a three-time AIME (American Invitational Mathematics Examination) qualifier. She also likes to watch a variety of movies.

NYAA Awards Second place: Vivek Vijayakumar

Vivek is a rising senior at San Marcos High School in San Marcos, California. He is a youth Member-at-large of the Astronomical League.

His project is titled "Characterizing the pulsations of Delta Scuti stars using the Mg Ib triplet."

Vivek's research objective "is to study the relation between pulsations and changes in the light curves of Delta Scuti variables and the profiles of the Mg Ib triplet spectral feature, including optical depth, Doppler shifts, and broadening. Question: How do the pulsations of Delta Scuti stars correlate to the profiles of the Mg Ib triplet?"

He found that "the Mg Ib spectral feature, despite demonstrating no detectable change of appearance in profile, demonstrated peculiarities and activity that shifted the spectral lines and broadened their profile. The strong positive correlations between apparent rotational velocity and broadening demonstrate the effect of fast rotation on the Mg Ib triplet. Additionally, after accounting for rotational broadening, the strong negative correlations between the residual broadening demonstrate that as the period of the star increases, the detected broadening as caused by chromospheric activity on the star decreases. This is related to regular radial pulsations and activity. There is also possible evidence of the interference of non-radial pulsations in the profiles and their particularly strong shifts as they are not always consistent between spectral lines, and demon-