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Editorial

The Latin-American Journal of Education in Astronomy (RELEA) reaches its twenty-eighth issue, fifteen years since its first edition. We published 122 articles in 28 editions, over 15 years. An average of 4.4 articles per issue and 7.6 articles per year.

Another important news is that RELEA now has, for all published items, the *Digital Object Identifier* (DOI) code. DOI is an alphanumeric code widely adopted on the Internet due to the need for standardization and preservation of information, it is unique and avoids duplication of texts, ensuring control over citations and metrics of scientific publications. Being internationally recognized, the main academic curricula (Lattes, ORCID and others) require their inclusion in scientific publications. We are especially grateful to Mr. Walison Aparecido de Oliveira and Ms. Ana Beatriz Almagro Rodrigues Rosa who worked with various sectors of UFSCar for the efforts that led to the hiring and implementation of the DOI.

The Latin-American presence in the international scene of modern Astronomy is multiple, a good example of this are the activities of the C1 Commission of the International Astronomical Union (IAU). An important recent initiative was the realization of the *Astronomy Education Conference: Bridging Research & Practice*, which took place at ESO, Garching, in Munich, Germany, from 16 to 18 September 2019. About 114 participants from 25 countries were present and were presented 44 oral communications, 50 panels and 10 workshops. Those interested can check the event material at iau-dc-c1.org/astroedu-conference, commented in the communication
W. Vieser et al., The Messenger 178. p.63, 2019 available at:
www.eso.org/sci/publications/messenger/archive/no.178-dec19/messenger-no178.pdf

Another initiative of interest integrated to the IAU's 100 Years was the *Astronomy Day in School*s (www.iau-100.org/astro-day-schools), from 10 to 17 November 2019, with more than 500 events and activities registered in a total of 70 countries, with records available at:
www.flickr.com/photos/161571186@N03/albums/72157711979885508/with/49138143266/
The continuity of *Astronomy Day* in forthcoming coming years is being considered for the dates of the March equinoxes, next on March 20, 2020.

In addition, the *1st Shaw-IAU Workshop on Astronomy for Education* took place in Paris from 17 to 19 December 2019, at IAU headquarters, at the Paris Astrophysics Institute (IAP) when the host institution of the *Office of Astronomy for Education (OAE)*, was announced and presented. It will be based at *Haus der Astronomie (HdA)*, in Heidelberg, Germany. More information at: www.iau.org/news/announcements/detail/ann19071/ www.iau.org/news/pressreleases/detail/iau1911/.

We also take the opportunity to publicize the *VI National Symposium on Education in Astronomy (VI SNEA)*, which is scheduled to take place from June 30 to July 3, 2020, at the *Universidade Estadual Paulista (UNESP)*, in the city of Bauru, SP (www.visnea.com.br/institucional/home).

In this issue we have six articles:

Estrelas variáveis no contexto educacional: uma proposta envolvendo a observação de cefeidas clássicas no ensino médio (Variable stars in the educational context: a proposal involving the observation of classical cepheids in the high school), by Daniel Iria Machado. The author presents a didactical proposal for the teaching of Astronomy through the observation of variable stars, in particular of classical Cepheids. The relationship between the oscillation period and the luminosity of such a star is discussed, showing how this property allows the determination of its distance. A didactic sequence is described in three pedagogical moments, with an initial problematization, organization and systematization of knowledge. The proposal is exemplified with the case of ℓ Carinae, a classical cefeida and visible to the naked eye, seeking to emphasize the contribution of observational activities to the construction of Astronomy concepts.

Qual é o tamanho do Universo? Uma proposta de sequência de ensino investigativo sobre os métodos de Eratóstenes e Aristarco para medir os tamanhos da Terra e da Lua (Which is the size of the Universe? A proposal of inquiry teaching sequence on the methods of Eratosthenes and Aristarchus to measure the Earth and Moon sizes), by Carlos Augusto Ferreira and Sérgio Mascarello Bisch. The work presents a proposal for a sequence of investigative teaching for Basic Education on determining the sizes of the Earth and the Moon, following the steps of Eratosthenes and Aristarchus of Samos, seeking to explore the historical and interdisciplinary aspects for the development of the theme. Questions are indicated to be presented to students and suggested activities for raising hypotheses and solving them, highlighting the observation of phenomena such as the shadows of objects and lunar eclipses, associated with the application of geometric and physical principles and an investigative attitude to obtain dimensions of the Earth and the Moon. The proposal represents a first step towards a broader teaching project on the theme of the dimensions of the Universe.

Visualização e uma avaliação das concepções prévias de alunos do ensino superior sobre as estações do ano (Visualization and an evaluation of undergraduate students´ preconceptions about seasons), by Adriano Luiz Fagundes, Tatiana da Silva and Marta Feijó Barroso. In this work, the previous conceptions about the seasons presented by 961 students of an introductory subject to Physics in higher education are investigated. Three questions from a pre-test applied in 8 semesters between 2013 and 2016 are analyzed. From a theoretical perspective that intends to understand the role of visualization in Science Education, seek to analyze the way students associate (or otherwise) the orbital model adopted and its respective explanations for the seasons. The results indicate that most students have a mistaken view of the shape of the Earth's orbital motion

As diferentes concepções sobre as fases da Lua de alunos dos oitavos anos do ensino fundamental de uma escola pública (The different conceptions about the phases of the Moon of students of eighth graders of a public school), by Danilo de Oliveira Kitzberger, Roberta Chiesa Bartelmebs and Valdir Rosa. This article aims to investigate the conceptions about the phases of the Moon with a group of 39 students from the 8th grade of a public school in the state of Paraná. With a qualitative approach, the results show that most students do not understand the translation and rotation movements of the Earth and the Moon, with only 10.3% being able to identify and name the phases of the Moon and present concepts such as that the Moon is always opposed the Sun and that its phases are caused by the projection of the Earth's shadow.

O ensino de astronomia e as possíveis relações com o processo de alfabetização científica (Teaching of astronomy and its possible relations with the process of scientific literacy), by Fábio Matos Rodrigues and Viviane Briccia. This article presents a theoretical discussion about the possible relationships between the teaching of Astronomical themes and the structuring axes of Scientific Literacy. It discusses how to use the characteristics of Astronomy, combined with teaching by research, aiming to make students more participative in the educational space with a critical reading of the world, making them more autonomous and closer to scientific knowledge in the process of Scientific Literacy.

Panorama de pesquisas em ensino de astronomia nos anos iniciais: um olhar para teses e dissertações (Panorama on research in astronomy teaching in the initial years: a view of theses and monographies), by Mayara Hilgert Pacheco and Marli Schmitt Zanella. The goal of this work was to identify what the research produced between 2008 and 2018 on teaching astronomy in the early years of elementary education reveals from a bibliographic review of theses and dissertations. Twenty-three researches were identified and analyzed showing that the teaching of Astronomy is a little explored area. They also reveal that there is a need to insert such contents and methodologies in the initial and continuing training of teachers, and that academic research should reach teachers so that they can participate in academic discussions on the topic.

In this issue we also publish a book review:

O céu (The sky), by Rodolpho Caniato. The review, written by Paula Cristina da Silva Gonçalves, presents the book with its introduction and five chapters. The work displays guidelines for teaching work and many activities and resources that can be actively worked with students.

More information about the Journal and instructions for authors can be found at: www.relea.ufscar.br. The articles can be written in Portuguese, Spanish or English.

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