Editorial: PRC's 50th Anniversary 1970–2020

Our world was changed dramatically with the onset of COVID-19. The challenges of the pandemic required that we be compassionate, innovative, and nimble. We had to seek new means to sustain meaningful relations and the connections that define our community. We were required to continue under new and difficult constraints to provide the best opportunities to discover and learn, and to have a meaningful impact on nuclear physics. Our authors and referees play a critical role in *Physical Review C*. We remain truly grateful for their essential involvement in the journal's success.

Nuclear physics has continued to expand since 1970 when the *Physical Review* was reorganized into *Physical Review A–D*. Since then, *Physical Review C* has become the preeminent journal of nuclear science. An important factor in enhancing *Physical Review C*'s quality was its growing reputation under the 30-year leadership of its first two long-term editors, H. H. Barschall and S. M. Austin. Both placed primary emphasis on a knowledgeable review process, expanding the referee database to include contemporary experts, which attracted important research from around the world and improved the quality of published papers. That approach continues today. Promoting high-quality peer review is the *raison d'être* for the remote-editor structure of *Physical Review C*, an editorial model in which active scientists in nuclear physics serve as handling editors who select knowledgeable referees.

Physical Review C has always been and continues to be an international journal. In the early 1980s approximately 40% of the papers published had corresponding authors who were based outside the U.S.A.; by 2019 more than 75% of papers published were submitted by such authors. In a similar vein, the referee database has achieved a significantly international flavor.

The field of nuclear physics has continually evolved during the half century since *Physical Review C* was created. The evolution of published subject matter has followed the trends in research activity. Relativistic heavy-ion collision physics and nuclear astrophysics have exhibited the largest percentage growth. The classic areas of nuclear structure and nuclear reactions remain strong but have embodied a shift in focus to nuclei far from stability and investigations with radioactive beams. Neutrinoless double- β decay and neutron decay dominate fundamental symmetries investigations, and hadron physics is a growing research area. With the budding effort to construct an Electron-Ion Collider, we look forward to future expansion into this new area of nuclear physics.

The journal seeks to listen to and to better serve our readers. Journal sections were introduced in 1975. In the 1980s *Physical Review C* was the first to expand Rapid Communications to five pages and move them to the front of the journal. Articles that the editors find particularly interesting or important are now highlighted as “Editors’ Suggestions.” Recently, in collaboration with the National Nuclear Data Center at Brookhaven National Laboratory, the journal initiated an important experiment involving the checking of certain spectroscopic data for consistency before review, in an effort to resolve internal inconsistencies prior to publication of results. Throughout 2020, *Physical Review C* highlighted on a biweekly basis, along with its sister anniversary journals *Physical Review A*, *Physical Review B*, and *Physical Review D*, landmark papers from the journal's history, and these “Milestones” are archived on a collection page [1]. In October, *Physics Magazine* published an article illuminating the original ideas behind three of those seminal *Physical Review C* papers and their impact on present-day

early career scientists [2]. And this year *Physical Review C* welcomed the long-advocated transition of the Rapid Communications designation to Letters in *Physical Review A–E* [3].

Despite changes since its establishment, the primary goal of the journal—to accept and publish those manuscripts that are scientifically sound and advance the field of nuclear physics—remains unchanged. Our review process emphasizes clarity in published papers so that the material is understandable to a reader working in the field, providing detail sufficient for knowledgeable colleagues to reproduce the experiment or calculation, and ensuring proper references so that credit is given where credit is due. In this endeavor *Physical Review C*, the American Physical Society’s Division of Nuclear Physics, and the nuclear physics community at large all owe a debt of gratitude to the outstanding scientists who have selflessly given their time and effort to serve as diligent referees, of whom a few are recognized each year as APS Outstanding Referees [4]. In addition, we sincerely thank those who have served as Editorial Board members and Associate Editors over the years. Finally, *Physical Review C* is most appreciative of the many talented investigators who have entrusted the journal with publishing their important research. These authors are indeed the journal’s heart and soul.

Benjamin F. Gibson
Editor, *Physical Review C*

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[1] PRC Milestone Collection: <https://journals.aps.org/prc/50th>.

[2] E. K. Carlson, 50 Years of *Physical Review C*: Probing the Secrets of Nuclei, *Physics* **13**, 168 (2020).

[3] Announcement: Rapid Communications papers will now be Letters, <https://journals.aps.org/edannounce/rapid-communications-will-be-letters>.

[4] Outstanding Referees Program, <https://journals.aps.org/OutstandingReferees>.