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Editorial

Editorial: An overview of some article types in EPJC and introducing the new section on "Computing, Software and Data Science"

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For over a decade, EPJ C has undergone regular editorial developments [1] and it seems the right time to take stock and to inform our communities again in more detail about current and future research interests to be served by the journal through suitable initiatives and related publications. Moreover, EPJC is participating in the new phase of SCOAP3 – thus allowing continuation of its operations as a fully sponsored (diamond) open access journal – starting from this year. This new funding phase puts some further emphasis on important aspects of open science [2].

For starters, we would like to provide a brief overview of some of the various article types we welcome in the journal (https://epjc.epj.org/epjc-aims-and-scope).

First of all, while the bulk of submissions are regular articles, we register a steady flow of 'Letter' submissions, and we would certainly like to encourage this development by continuing to offer a broad range of different ways to consider a Letter-type contribution - either on its own right or in combination with a longer research article to follow shortly after.

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More concretely, our scope states that *Letters aim at a fast and concise communication of material of current interest:*

- *an important theoretical, computational or experimental result*
- *a valuable discussion of, or a short essay on, an open scientific issue*
- *a valuable presentation of innovative and promising ideas and concepts*

We would like to emphasize here the general importance we attach to the much less frequently encountered last two types of 'Letters' the journal covers and would thus like to explicitly encourage the submission of substantial and well-argued conjectures, discussions or opinion pieces.

Further, EPJC had featured, until recently, a distinct article type called "Tools for Theory and Experiment", as a subset of regular articles covering more technical aspects regarding experimental, computational or theoretical techniques of relevance to the scope of the journal. Originally called "scientific notes" at the time of the Large Electron-Positron Collider (LEP), they were meant to allow for a separate publication of relevant background material that could not be included in the then newly emerging large collaboration papers. After many years, we eventually felt it more appropriate and effective to expand, in the aims and scope, our definition of regular articles to encompass also suitable "tools" articles:

Regular articles describe original work or provide details of original work previously published in a Letter article.

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Regular articles also include any technical articles presenting original and novel developments, e.g., in particle detection, computational tools, machine learning or other analysis methods, provided direct relevance to physics topics within the journal's aims-and-scope can be demonstrated. Further, regular articles may take the form of suitably fleshed-out internal notes of experimental collaborations, detailing specific aspects of importance for understanding and assessing the physics results presented in full collaboration articles.

At the same time, specifically with the emergence of modern machine learning techniques, we anticipate that there will be a rapid increase in the intertwining of model building, discoveries and computational tools. Extending this systematically to encompass all relevant aspects of innovative information and data technology driven progress in the field, we are very pleased to announce the start of a new section, "Computing, Software and Data Science", which covers:

- *machine learning and data science techniques*
- *statistical methods for data analysis and interpretation*
- *software for theoretical calculations and physics event generation*
- *detector simulation and modelling of detector response*
- *online/offline data reconstruction and filtering*
- *software integration and benchmarking*
- *frameworks and heterogenous computing*
- *computing middleware developments*
- *high-throughput and high-performance computing*
- *applications of quantum computing*

and has recently opened for submissions. This section explicitly welcomes and integrates the community served so far by the journal "Computing and Software for Big Science (CSBS)" [3][1]

By mirroring the current and successful scope of CSBS as a new section of EPJC, we finally and consistently integrate HEP-specific computational tools and related data science to form what can be considered now a fully rounded journal for all scientists and engineers professionally interested in and attached to the fields of particle physics, astrophysics and cosmology.

Last, but not least, we would like to encourage you to contact us anytime with suggestions on how to further improve the journal's editorial policies and services. The growing emphasis of the journal on review-type articles will be dealt with in a second Editorial in the course of the year.

Francesco Forti (Experimental Physics I: Accelerator Based High-Energy Physics)

Jocelyn Monroe (Experimental Physics II: Astroparticle Physics)

Markus Elsing (Software, Computing and Data Science)

Giulia Zanderighi (Theoretical Physics I: Phenomenology of the Standard Model and Beyond)

Dominik J. Schwarz (Theoretical Physics II: Astroparticle Physics and Cosmology – Models and Phenomenology)

Emilian Dudas (Theoretical Physics III: Quantum Field Theory and Gravity – Fundamental and Formal Aspects)
and

Christian Caron (Publishing Editor)

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Code Availability Statement This manuscript has no associated code/software. [Author's comment: Code/Software sharing not applicable to this article as no code/software was generated or analysed during the current study.]

References

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[1] CSBS in turn will significantly broaden its scope in the future to encompass fundamental (big) science well beyond physics and also consider the missions and operations of related large-scale research facilities more broadly beyond computing infrastructures.