

**Ideas for a journal (and books) on
“Computing and Software for Data-intensive Physics”**



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A first slide on what I do at Springer

- Publishing Editor of EPJ C (Particles and Fields)
[+ Editorial Representative for Springer @ SCOAP3 , EPJC + JHEP]
- Publishing Editor of EPJ A (Hadrons and Nuclei)
- Publishing Editor of Lecture Notes in Physics
- Other book series like
 - Particle Acceleration and Detection
 - Complex Systems
 - Science and Fiction

First ideas ...

... arose when Günter Quast (KIT) gave an inspiring talk at a particle physics conference in Mainz in 2013.

From discussions thereafter, also at CERN, emerged first ideas for a textbook on fundamentals, and then a journal on „HEP Computing“

- > Textbook: the proposal and outline still exists. The problem (as so often) remains to find lecturers with enough time to write a chapter.
- > Journal: refereed, abstracted and indexed, Impact Factor (needs 2 years)
 - academic aspects and career paths in the field (physicists)
 - authoritative and central reference and archive
 - positive feed-back loop on the dynamics and visibility of a community

Present status

➤ **Title: Computing and Software for Data-Intensive Physics**

➤ **Aims:**

This peer-reviewed journal, at the interface of the physical and computer sciences, is dedicated to the publication of high-quality material originating from the collective effort by the scientific community to address the special and ever more demanding computing and software needs of the future.

At its core will be nuclear, particle and astro-particle physics, as well as observational astronomy and cosmology, fields in which experimental research is increasingly organized in large and global collaborations around large-scale instruments with huge output of data. Related contributions from other major experimental facilities, such as e.g. high-brilliance light sources, are also welcome.

Facing similar challenges ranging from data reduction, via data sharing, to increasingly data-driven modeling of different facets of the same physical universe, the scientific community requires fundamental and novel concepts for large-scale and collaborative computing and software development, as well as novel algorithms and techniques for data processing.

Journal: tentative scope

- > **infrastructures** for large-scale, high-throughput computing
- > related **software** and development Infrastructure
- > **middleware** development
- > data **processing, hosting and sharing**
- > novel **algorithms** for efficient data reconstruction and filtering
- > software **Benchmarking** and Performance Assessment
- > **frameworks** and software integration
- > Online/Offline **data quality** monitoring
- > Distributed **data analysis**
- > **Deep learning** algorithms
- > Event and object **classification**
- > Data **Visualization**

Open questions:

i) What is the right size/focus/scope between

HEP Computing (close to physics collaborations)

and

Computing and Software for data-intensive „big science“ in general (cf e.g. <http://www.helix-nebula.eu/> for cloud computing involving Life Sciences etc.)

ii) business model:

hybrid versus pure OA

iii) article types:

no letters, regular articles, reviews, advanced tutorials (e.g. from schools), „no proceedings“.

iv) details of editorial structure

- Editor-in-Chief
- Topical Editors/Managing Editors (HEP, nuclear physics, astroparticles, cosmology,)
- Editorial Board