



ESSAY

## Editor's Preface to Essay Section

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The following content constitutes an informal but fortuitous collection that speaks to methods and analysis in frontier science. Articles about model-building or theory formation on anomalous phenomena often garner the strongest interest for understandable reasons, but the underlying approaches and techniques that drive charge- or challenge-type discoveries arguably represent some of most fascinating and important information. To be sure, descriptions of flexible or innovative methods can inspire and support work across many different academic disciplines. Thus, the *JSE* welcomes submissions that present newly developed (or specifically tailored) methods and instrumentation for studies in anomalistics. We further encourage readers to explore the many peer-reviewed journals devoted to analytics, instrumentation, and research design. Interested readers can search and learn about such journals at aggregator sites like [Publons.com](http://Publons.com) or [Resurichify.com](http://Resurichify.com), but Table 1 below presents a convenient selection of 25 examples that arguably are worthy of attention, with good-to-high impact factors.

Note that “Impact factor” is currently the leading metric of a journal’s status and influence, but that its limitations [e.g., Antonoyiannakis, M. (2020), Impact factor volatility due to a single paper: A comprehensive analysis. *Quantitative Science Studies*, 1, 639–663. [https://doi.org/10.1162/qss\\_a\\_00037](https://doi.org/10.1162/qss_a_00037)] have motivated many authorities to argue for alternative, supplementary, or new metrics [e.g., Wouters, P. et al. (2019). Re-thinking impact factors: Better ways to judge a journal, *Nature*, 569, 621–623. <https://doi.org/10.1038/d41586-019-01643-3>].



**TABLE 1. Popular Journals on Scientific Methods and Analysis**

Name	Description <sup>†</sup>	Impact Factor	URL
<b>Nature Electronics</b>	Publishes both fundamental and applied research across all areas of electronics, from the study of novel phenomena and devices to the design, construction and wider application of electronic circuits. It incorporates the research of scientists, engineers and industry, and provides comment, review and analysis of the key issues shaping the field and the key technologies reshaping society.	13.56	<a href="https://www.nature.com/natelectron/">https://www.nature.com/natelectron/</a>
<b>ISPRS Journal of Photogrammetry and Remote Sensing</b>	Provides a channel of communication for scientists and professionals in all countries working in the many disciplines that employ photogrammetry, remote sensing, spatial information systems, computer vision, and related fields.	11.91	<a href="https://www.journals.elsevier.com/isprs-journal-of-photogrammetry-and-remote-sensing">https://www.journals.elsevier.com/isprs-journal-of-photogrammetry-and-remote-sensing</a>
<b>IEEE Geoscience and Remote Sensing Magazine</b>	Provides information on international remote sensing activities and new satellite missions, publishes contributions on education activities, industrial and university profiles, conference news, book reviews, and a calendar of important events.	8.63	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6245518">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6245518</a>
<b>ACS Sensors</b>	Disseminates new and original knowledge on all aspects of sensor science that selectively sense chemical or biological species or processes. Articles may address conceptual advances in sensing that are applicable to many types of analytes or application papers which report on the use of an existing sensing concept in a new way or for a new analyte.	8.57	<a href="https://pubs.acs.org/journal/ascefcj">https://pubs.acs.org/journal/ascefcj</a>
<b>ISA Transactions, Sensors and Actuators B: Chemical</b>	Publishes research and development in the field of chemical sensors and biosensors, chemical actuators and analytical microsystems that progress beyond the current state of the art in these fields along with applicability to solve meaningful analytical problems.	8.42	<a href="https://www.elsevier.com/journals/sensors-and-actuators-b-chemical/0925-4005/subscribe">https://www.elsevier.com/journals/sensors-and-actuators-b-chemical/0925-4005/subscribe</a>
<b>Journal of Statistical Software</b>	Publishes articles on statistical software along with the source code of the software itself and replication code for all empirical results. Furthermore, shorter code snippets are published as well as book reviews and software reviews.	6.274	<a href="https://www.jstatsoft.org/index">https://www.jstatsoft.org/index</a>
<b>Sensors and Actuators Reports</b>	Publishes new and original works in the field of all type of sensors and actuators, including bio,, chemical, physical, and nano sensors and actuators, which demonstrates significant progress beyond the current state of the art. The journal regularly publishes original research papers, reviews, and short communications.	6.22	<a href="https://www.sciencedirect.com/journal/sensors-and-actuators-reports">https://www.sciencedirect.com/journal/sensors-and-actuators-reports</a>
<b>IEEE/ACM Transactions on Audio Speech and Language Processing</b>	Dedicated to innovative theory and methods for processing signals representing audio, speech and language, and their applications. This includes analysis, synthesis, enhancement, transformation, classification and interpretation of such signals as well as the design, development, and evaluation of associated signal processing systems.	6.02	<a href="https://signalprocessing.org/publications-resources/ieeacm-transactions-audio-speech-and-language-processing">https://signalprocessing.org/publications-resources/ieeacm-transactions-audio-speech-and-language-processing</a>
<b>Behavior Research Methods</b>	Covers methods, techniques, and instrumentation of research in experimental psychology, with particular focus on the use of computer technology in psychological research.	5.953	<a href="https://www.springer.com/journal/13428">https://www.springer.com/journal/13428</a>
<b>IEEE Transactions on Instrumentation and Measurement</b>	Publishes innovative solutions to the development and use of electrical and electronic instruments and equipment to measure, monitor and/or record physical phenomena for the purpose of advancing measurement science, methods, functionality and applications.	5.59	<a href="https://ieeexplore.ieee.org/xpl/aboutJournal.jsp?punumber=19">https://ieeexplore.ieee.org/xpl/aboutJournal.jsp?punumber=19</a>

<b>Measurement: Journal of the International Measurement Confederation</b>	Covers novel achievements in all fields of measurement and instrumentation and includes subjects such as: measurement and metrology fundamentals, measurement science, sensors, measurement instruments, measurement and estimation techniques, measurement data processing and fusion algorithms, evaluation procedures for performance analysis of measurement systems, processes and algorithms, mathematical models for measurement-oriented purposes, and distributed measurement systems in a connected world.	5.5	<a href="https://www.journals.elsevier.com/measurement">https://www.journals.elsevier.com/measurement</a>
<b>IEEE Transactions on Radiation and Plasma Medical Sciences</b>	Addresses technology and application areas related to radiation and plasma-based medical sciences. These areas include radiation detectors for medical and biological applications; imaging system design, optimization, and performance; therapy-related system design, optimization and performance; radiation-application-based image reconstruction, data analysis and image processing; medical radiation therapy applications; clinical/preclinical evaluation of imaging and therapy systems, plasma applications in medicine and biology; and simulations for imaging and therapy applications.	4.95	<a href="https://ieeetrpms.org/about-this-journal/">https://ieeetrpms.org/about-this-journal/</a>
<b>International Journal of Qualitative Methods</b>	An eclectic international forum for insights, innovations and advances in methods and study designs using qualitative or mixed methods research. The journal publishes methods papers, and study protocols.	4.828	<a href="https://journals.sagepub.com/home/ijq">https://journals.sagepub.com/home/ijq</a>
<b>EJNMMI Physics</b>	A multi-disciplinary forum that welcomes original materials and studies with a focus on applied physics and mathematics as well as imaging systems engineering and prototyping in nuclear medicine.	4.20	<a href="https://ejnmphys.springeropen.com/">https://ejnmphys.springeropen.com/</a>
<b>PFG Remote Sensing and Geoinformation Science</b>	Covers the progress and application of photogrammetric methods, remote sensing technology and the interconnected field of geoinformation science. It emphasizes new methodologies in data acquisition and new approaches to optimized processing and interpretation of all types of data acquired by photogrammetric methods, remote sensing, image processing and the computer-aided interpretation of such data in general.	4.09	<a href="https://www.springer.com/journal/41064">https://www.springer.com/journal/41064</a>
<b>International Journal of Social Research Methodology</b>	Addresses on-going and emerging methodological debates across a range of approaches, both qualitative and quantitative, and including mixed, comparative and simulation methods, as these relate to philosophical, theoretical, ethical, political and practical issues.	3.468	<a href="https://www.tandfonline.com/toc/tsrm20/current">https://www.tandfonline.com/toc/tsrm20/current</a>
<b>Structural Dynamics</b>	Covers the technologies, fields, and categories related to condensed matter physics, instrumentation, radiation, and spectroscopy.	3.07	<a href="https://www.aapm.org/">https://www.aapm.org/</a>
<b>Ultramicroscopy</b>	Provides original research papers, invited reviews and rapid communications on the advancement of new methods, tools and theories in microscopy.	2.91	<a href="https://www.sciencedirect.com/journal/ultramicroscopy">https://www.sciencedirect.com/journal/ultramicroscopy</a>
<b>Physics in Medicine</b>	Covers the application of theoretical and practical physics to medicine, physiology and biology.	2.71	<a href="https://www.sciencedirect.com/journal/physics-in-medicine">https://www.sciencedirect.com/journal/physics-in-medicine</a>
<b>Journal of Synchrotron Radiation</b>	Provides comprehensive coverage of the entire field of synchrotron radiation and free-electron laser research including instrumentation, theory, computing and scientific applications in areas such as biology, nanoscience and materials science.	2.52	<a href="https://journals.iucr.org/s/">https://journals.iucr.org/s/</a>
<b>Field Methods</b>	Addresses the various methods used by field investigators from the social and behavioral sciences in the collection, management, analysis and presentation of data about human thought and/or human behavior in the natural world. The data can be qualitative or quantitative, as can the methods for analysis and presentation.	1.782	<a href="https://journals.sagepub.com/home/fmx">https://journals.sagepub.com/home/fmx</a>
<b>Journal of Analytical Sciences, Methods and Instrumentation</b>	Concerns all aspects of theory and practice of analytical sciences, measurement science, analytical methodology, experimental methods, experimental protocols, technical characterizations and instrumentation (sampling, analysis, electrochemistry, microscopy, spectroscopy, mechanical analysis, thermal analysis, separations, spectroscopy, chemical reactions and selectivity, imaging, surface analysis, and data processing among others).	1.14	<a href="https://www.scirp.org/journal/journalarticles.aspx?journalid=525">https://www.scirp.org/journal/journalarticles.aspx?journalid=525</a>
<b>Journal of Instrumentation</b>	Covers major areas related to concepts and instrumentation in detector physics, accelerator science and associated experimental methods and techniques, theory, modelling and simulations. It also covers methods and apparatus for astronomy and astrophysics.	1.07	<a href="https://iopscience.iop.org/journal/1748-0221">https://iopscience.iop.org/journal/1748-0221</a>

† Adapted from descriptions on the respective journals' websites.

