

ILIAS S. KOTSIREAS

(+1)884-0710 ext 2218# ◊ ikotsire@wlu.ca ◊ <http://www.cargo.wlu.ca>

75 University Avenue West, N2L 3C5, Waterloo, Ontario, Canada

<http://web.wlu.ca/science/physcomp/ikotsireas/>

EDUCATION (4)

- 1995-1998, Ph.D. Université Paris 6, Paris, France. Advisor : Prof. Daniel Lazard
- 1994-1995, M.Sc. Université Paris 6, French National Bureau of Standards, Paris, France.
- 1992-1994 B.Sc. Department of Computer Science, Université Paris 6, Paris, France.
- 1986-1990 B.Sc. Department of Mathematics, University of Athens, Athens, Greece.

POSITIONS (9)

- Chair, ACM SIGSAM, 4-year term: July 1, 2013 - July 1, 2017, <http://www.sigsam.org/>
- July 2011 - present, Professor, Wilfrid Laurier University, Waterloo, ON, Canada.
- December 2005 - July 2011, Associate Professor, Wilfrid Laurier University, Waterloo, ON, Canada.
- July 2001 - December 2005, Assistant Professor, Wilfrid Laurier University, Waterloo, ON, Canada.
- 1999 - 2001, Post-Doctoral Fellow, ORCCA University of Western Ontario, London, ON, Canada.
- 1998-99 Lecturer, Department of Computer Science, Université Paris 6, Paris, France.
- 1997-98 Laboratory Assistant (Travaux Dirigés, TD), Lycée Saint-Louis, Paris, France.
- 1994-98 Teaching Assistant, Department of Computer Science, Université Paris 6, Paris, France.
- 1995-96 Laboratory Assistant, Université de Versailles Saint-Quentin-en-Yvelines, Versailles, France.

PUBLICATIONS (189)

Journal Papers (refereed)	74
Conference Papers (refereed)	47
Edited books (conference proceedings)	27
Journal Special Issues	25
miscellaneous	16
Total:	189

AWARDS/HONORS (13), PLEASE SEE FULL CV

EDITORIAL BOARD (5+5)

I currently serve as Editor-in-Chief of one journal and one book series and Managing Editor of two journals:

1. Managing Editor: (since May 1, 2019) Springer Nature Operations Research Forum (SN ORFO), published by Springer Nature
2. Editor-in-Chief: (since January 1, 2018, transition period started October 15, 2017) Journal of Algebraic Combinatorics (JACO), published by Springer
3. Editor-in-Chief, Progress in Computer Science and Applied Logic (PCSAL) book series (since January 2018)
4. Managing Editor: (since January 1, 2017) Mathematics in Computer Science (MCS), published by Birkhäuser/Springer
5. I served as the Editor of ACM Communications in Computer Algebra, published by ACM SIGSAM, for a decade: July 2003 - July 2013.

I currently serve on the editorial board of the following five (5) journals:

1. Journal of Combinatorial Designs, published by Wiley
2. Optimization Letters, published by Springer
3. Journal of Computational Science, published by Elsevier
4. Special Matrices, published by De Gruyter
5. JACODESMATH, published by Yildiz Technical University, Turkey

GUEST EDITORSHIP: I HAVE GUEST EDITED 25 SPECIAL ISSUES OF JOURNALS

JSC (Journal of Symbolic Computation), Elsevier	2
TCS (Theoretical Computer Science), Elsevier	3
MCS (Mathematics in Computer Science), Birkhäuser/Springer	6
AAECC (Applicable Algebra in Engineering, Communication and Computing), Springer	1
AMAI (Annals of Mathematics and Artificial Intelligence), Springer	1 + 1 (on-going)
Mathematics and Computers in Simulation, Elsevier	1
JSPI (Journal of Statistical Planning and Inference), Elsevier	1
JCAM (Journal of Computational and Applied Mathematics), Elsevier	1
APNUM (Applied Numerical Mathematics), Elsevier	4
JoCS (Journal of Computational Science), Elsevier	2
DCC (Designs, Codes and Cryptography), Springer	1
Complexity, Hindawi	1
Total:	25

PROGRAM COMMITTEE CHAIR, GENERAL CHAIR: 25 CONFERENCES

ACA 2020, Athens, Greece, General Chair (moved to July 2021 due to COVID-19 pandemic) ◦ Maple User Conference, October 2019, Waterloo, Ontario, Canada, General Chair ◦ ArasuFest, 2019, Kalamata, Greece, General Chair ◦ DOD 2019 Kalamata, Greece, General Chair ◦ SEA² 2019, Kalamata, Greece, General Chair ◦ ACA 2017 Jerusalem, Israel, General Chair ◦ LION12, Kalamata, Greece, Program Committee Chair ◦ DOD 2017 Kalamata, Greece, General Chair ◦ CAI 2017 Kalamata, Greece, General Chair ◦ MACIS 2015 Berlin, Germany, General Chair ◦ ACA 2015, Kalamata, Greece, General Chair ◦ DOD 2015, Kalamata Greece, General Chair ◦ ACA 2014 New York City, USA, Programme Chair ◦ AMMCS 2013, Waterloo, ON, Canada, General Chair ◦ MACIS 2011, Beijing, China, Program Committee Chair ◦ AMMCS 2011, Waterloo, ON, Canada, General Chair ◦ SNC 2011, San Jose, CA, USA, General Chair ◦ SNC 2009 Kyoto, Japan, Program Committee Chair ◦ WWCA 2008 Waterloo, Ontario, Canada, General Chair ◦ MC06 Maple Conference 2006, Waterloo, Ontario, Canada, General Chair ◦ WWCA 2006 Waterloo, Ontario, Canada, General Chair ◦ CASC 2005 Kalamata, Greece, General Chair ◦ MC05 Maple Conference 2005, Waterloo, Ontario, Canada, General Chair ◦ ECCAD 2004 Waterloo, Ontario, Canada, General Chair ◦ ACA 2002 Volos, Greece, General Chair

LIST OF 8+1 SELECTED PUBLICATIONS (4 JSC AND 4 ISSAC) ILLUSTRATING MY SIGNIFICANT CONTRIBUTIONS IN THE FIELD OF SYMBOLIC COMPUTATION

JSC 100 (2020), pp. 187-209 ◦ (TO APPEAR) JSC, Special Issue ISSAC 2018 ◦ JSC 44 (2009), no. 11, 1536-1550 ◦ JSC 44 (2009), no. 3, 271-279 ◦ ISSAC 2018 Proceedings ◦ ISSAC 2017 Proceedings ◦ ISSAC 2001 Proceedings ◦ ISSAC 2000 Proceedings

My most-cited paper is: Robert M. Corless, Mark Giesbrecht, Ilias S. Kotsireas, Stephen M. Watt
Numerical Implicitization of Parametric Hypersurfaces with Linear Algebra. AISC 2000: pp. 174–183

ILIAS S. KOTSIREAS

(+1)884-0710 ext 2218# ◊ ikotsire@wlu.ca ◊ <http://www.cargo.wlu.ca>

75 University Avenue West, N2L 3C5, Waterloo, Ontario, Canada

Full CV available at: <http://web.wlu.ca/science/physcomp/ikotsireas/cvKotsireas.pdf>

Vision for JSC Editorship

ON THE FIELD OF SYMBOLIC COMPUTATION

1. Definition of the field?

Symbolic computation is the sub-area of mathematics and computer science which solves problems on symbolic objects representable on a computer. Typical examples of such objects are algebraic expressions, logical propositions, and programs themselves. The problem solutions are integrated in many advanced software systems for computer algebra, computer aided design and manufacturing, computer supported reasoning, knowledge management, and formal system specification and verification. Besides playing a fundamental role within mathematics itself, symbolic computation is thus a key technology in many scientific and technical areas today. More than any other area, symbolic computation depends on the integration of theoretical foundations (mathematics, logics, algorithms), and the implementation in software systems.

Adopted from: <https://risc.jku.at/studying-symbolic-computation/>

2. Should the field be expanded? Reduced, focused?

In general, the natural evolution of a (vibrant) scientific field includes expansion, growth and increasingly, interactions with other areas and new trends. This cross-fertilization of fields is (typically) advantageous to all fields involved. Therefore, Symbolic Computation can benefit with interactions with areas such as Logic, Satisfiability, Combinatorics (Graph Theory & Design Theory), Numerical Computation, Combinatorial Optimization, Cryptography, Coding Theory, Number Theory, Quantum Computing, Data Science, Machine Learning and other areas. In addition, applications are important and should not be neglected. It is debatable whether there is a killer-application of Symbolic Computation, in the sense that a killer-application of eigenvalue computation is the PageRank algorithm. But it maybe that one such killer-application of Symbolic Computation will be found in the future. I strongly believe that cross-pollination of disciplines is an important process in today's research, given that research has become a collective process. At the risk of sounding (somewhat) pedantic, i will repeat that Symbolic Computation can draw benefits from interactions with other research areas.

3. The main sub-areas of symbolic computation in your view? (in random order)

Gröbner Bases
Differential Algebra
Exact Linear Algebra
Real Algebraic Geometry
Symbolic Summation/Integration
Polynomial Algorithms/Factorization
Symbolic-Numeric computation
Polynomial System Solving
Modular Algorithms

4. **Relation/Interactions with or role within other fields (logic, mathematics, computer science, science, engineering, education).**

Symbolic Computation has a lot more to offer in several areas of Mathematics, Computer Science, Engineering, as well as application areas. The prototypical example is the revolution that the theory of Gröbner Bases provoked in Commutative Algebra and constructive Algebraic Geometry. And yet, some facets of the influence that Gröbner Bases can exert in other areas, still remain in their infancy, as is demonstrated in the book:

Mirror Symmetry and Algebraic Geometry
David A. Cox, Sheldon Katz
AMS Mathematical Surveys and Monographs
Volume 68; 1999; 469 pp

There are deep and intricate connections of Gröbner Bases with Mirror Symmetry and Algebraic Geometry that are yet to be discovered. This is simply one case study that I happen to know more about, there are most likely several other such cases.

ON THE SCOPE OF JOURNAL OF SYMBOLIC COMPUTATION

1. **Which aspects of the field (logical foundations, mathematical foundations, algorithms, software implementation and software systems, applications) should be emphasized/covered?**

I would say that all aspects of the field should be covered in JSC. Among the actual criteria for publication I would prioritize novelty of the contributions and significance of the results. Submissions that are not up to the standards of JSC should be rejected immediately, with a documented rationale for the rejection decision.

ON THE ORGANIZATION OF THE JOURNAL

1. **Refereeing procedure**

The JSC Editor is responsible for assigning submissions to JSC Editorial Board members for handling (i.e. for being in charge and organizing the refereeing process for these submissions) after mutual agreement. Obviously an Editorial Board member may decline to handle a certain submission, based on various reasons (such as conflict of interest, insufficient expertise and so forth). I attribute great importance to individual consultations among the Editor and Editorial Board members, in a collegial manner. A preliminary discussion with Editorial Board members whose expertise lies within the area of a submission, is a good way to determine effectively and reliably whether or not the submission is up to the standards.

2. **Role of the editor, of the editorial board, of the publishing company**

The role of the Editor is to oversee all aspects of the journal's operations. This includes:

- managing the incoming submissions
- communicating with the Editorial Board members regarding the papers they are handling
- communicating with the publishing company in order to deal with issues arising at their end
- intervene in the case of disputes, complaints, "forgotten" submissions, plagiarism incidents, with the aim to engage in constructive discussion with Authors/Editors and (if needed) Referees, in order to reach a resolution as quickly as possible
- not to overturn decisions made by Editorial Board members, based on thorough and documented referee reports
- make sure that the journal standards are strictly enforced

The role of the Editorial Board is to:

- handle submissions in their area of expertise (and sometimes beyond their area of expertise, but only voluntarily and after mutual agreement with the Editor)
- point out to the Editor any issues that they become aware of, during the refereeing process, if these issues require attention
- offer expert advice on incoming submissions, especially the ones that are to be rejected as “out of the scope” and/or “not up to the standards”
- engage in discussions on how to improve the journal and its day-to-day operations and workflow.
- solicit and generate special issues of various kinds, e.g. celebratory/memorial, conference, topical collections

The role of the publishing company is to support all aspects of the journal’s operations. This includes:

- publisher’s JSC webpage maintenance, production of updated marketing materials (brochures, leaflets),
- organizing the production operations, i.e. typesetting proofs and obtaining permission from the authors (or the corresponding author) to publish the proof. We need a clear and definite commitment from Elsevier’s production team to prepare the proofs of accepted papers, obtain author permission and place the .pdf files online within (a maximum of) 2 weeks of their being accepted
- produce annual statistics reports regarding the usual journal’s metrics, such as, number of submissions, geographical origin/distribution of the submissions, accepted/rejected papers, article turnaround times, Impact Factor trends, citation data, marketing, journal ranking data etc
- engage in discussions with the Editor regarding all journal matters, i.e. on-time publication of the regular issues and special issues, effective usage of automated plagiarism detection software and so forth

3. Relation to conferences and steering committees

The JSC Editor can be a catalyst in the Symbolic Computation community, in the sense that they can contribute in the coordination between choosing the dates for various related conferences, so as to avoid overlaps, as much as humanly possible. At the same time i feel the the JSC Editor’s role in these matters should be simply consultatory. Decisions are to be made solely by the steering committees and the conference organizers. Given the warm and collegial relationships that i maintain with Symbolic Computation researchers, i am utterly convinced that this is possible.

4. Special issues

Special issues are definitely a useful feature for JSC, whether they are celebratory/memorial issues for researchers, or conference special issues, or thematic collections of papers. Due to the tireless efforts and incredible energy of Bruno Buchberger and Hoon Hong, the JSC has published several special issues in the past 35 years. I believe this feature should continue and we should collectively think of ways of soliciting and generating special issues. For example, if every JSC Editorial Board member was able to solicit and generate one special issue in a 5-year period, then we would automatically have 40+ special issues in a 5-year period! In terms of an ancient Greek wisdom phrase:

$\eta \iota \sigma \chi \upsilon \varsigma \epsilon \nu \tau \eta \epsilon \nu \omega \sigma \epsilon \iota$ (== power comes from being united)

5. Hard copies and e-version, archiving

Depending on the number of libraries around the world that currently maintain active subscriptions to the hard copy version of the JSC, we may want to re-evaluate whether or not a hard copy is needed.

The e-version of the JSC is managed by the publishing company and that includes content production and dissemination. But the issue of content **preservation** also arises.

As journals move online and articles are published in digital, rather than physical, formats it's becoming increasingly important for publishers to take steps to ensure that their articles will always be available to readers, even in the event of a publication being lost or discontinued. The best way to ensure that journal articles will always be accessible to readers is to deposit all published articles into a long-term digital preservation service or archive.

Among the various proposed solutions for archiving today, we can:

- explore the archiving options proposed by Elsevier, i apologize if this has been done already and if this is the case, i would very much like to know what these options are
- look into what other communities are doing, for example, BioMedCentral (BMC) deposits the articles that it publishes in multiple digital archives (mirror sites) around the world to guarantee long-term digital preservation.

These archives include:

INIST (France)
Koninklijke Bibliotheek (The Netherlands)
PubMed Central (United States)
PubMed Central Canada
Europe PubMed Central

The issue of archiving will most certainly involve a close collaboration with the publisher, to iron out copyright and other technical issues. It may be a good idea to designate an existing Editorial Board member (or another individual from the community) to serve as a liaison in this respect.

6. Promotion of the journal

In today's digital era, the landscape for promoting a journal has changed drastically. We must also evolve along these lines and actively promote the journal in the appropriate digital venues, LinkedIn and Twitter are just but two possibilities. Perhaps we can offload these tasks to the publishing company, given that nowadays publishing companies spend a lot of time and energy to embellish their profiles in the digital arena. At the same time, promotion by more traditional means, for example by inserting JSC promotional materials at conference registration packages, is still an effective means of disseminating information about the journal.

Another way to promote the journal would be to establish a prestigious JSC award, preferably funded by IT companies. This could be (for example) a Test-of-Time award, such as the one given annually by IACR <https://www.iacr.org/testoftime/> for a paper which has had a lasting impact on the field and was published 15 years prior. The details of the award can be discussed amongst the Editorial Board members and other important players such as manufacturers of Computer Algebra Systems. Another idea could be a Young Researchers award, given to individuals who publish an influential (highly-cited) JSC paper, imposing an age limit or a limit on the number of years elapsed from earning the PhD degree. Once again, the details of the award can be discussed collectively.

ON THE OUTLOOK FOR THE FIELD OF SYMBOLIC COMPUTATION AND THE JOURNAL

1. In relation to drastic changes to be expected in society, science, technology, digitalization.

We (Editor + Editorial Board + community members at large) should be vigilant to identify future trends that could have consequences in the way the JSC operates for the past 35 years. And should the need arise, we should be ready to adopt any new transformations necessary, to ensure JSC continues to serve the Symbolic Computation community.

2. In the future of mathematical knowledge management.

Mathematical Knowledge Management is an exciting (relatively) new field at the intersection of mathematics and computer science. Its purpose is to develop efficient, new techniques - based on sophisticated formal mathematics and software technology - to take advantage of the enormous amount of knowledge available in current mathematical sources and to organize mathematical knowledge in new ways. By its very nature, the realm of mathematical information looks a very likely candidate on which to test innovative theoretical and technological solutions for content-based systems, interoperability, management of machine understandable information, and the Semantic Web. Another definition of Mathematical knowledge management (MKM) is the study of how society can effectively make use of the vast and growing literature on mathematics. It studies approaches such as databases of mathematical knowledge, automated processing of formulae and the use of semantic information, and artificial intelligence. Mathematics is particularly suited to a systematic study of automated knowledge processing due to the high degree of interconnectedness between different areas of mathematics. I am not sure what the state of affairs is in MKM, but I definitely view it as an important part of Symbolic Computation. Major projects in the realm of MKM, such as NIST's Digital Library of Mathematical Functions and MathML, showcase that MKM generated very important contributions so far.

ILIAS S. KOTSIREAS

(+1)884-0710 ext 2218# ◇ ikotsire@wlu.ca ◇ <http://www.cargo.wlu.ca>

75 University Avenue West, N2L 3C5, Waterloo, Ontario, Canada

Full CV available at: <http://web.wlu.ca/science/physcomp/ikotsireas/cvKotsireas.pdf>

Motivation for JSC Editorship

WHY DO YOU WANT TO BECOME THE EDITOR OF THE JOURNAL OF SYMBOLIC COMPUTATION?

- One of the main motivations behind my desire to serve as Editor of the JSC, is to aid the careers of young researchers in Symbolic Computation. It is crystal clear to me that young researchers need to publish in the top quality journal in their research area, for several reasons, such as promotions, grants, and academic recognition.
- I am very keen on serving as Editor of the JSC, in order to give back to the Symbolic Computation community, that nurtured my academic career since 1995.
- I view the position of JSC Editor as one of the most important positions of service, within the entire Symbolic Computation community.
- I feel that the JSC Editor position will be a substantial major milestone in my career. I also feel that the JSC Editor position is a unique distinction and honor, bestowed by the Symbolic Computation community.

WHY ARE YOU ENTHUSIASTIC ABOUT THE JOURNAL?

- The JSC publishes top quality papers in the area of Symbolic Computation for decades. I intend to contribute to continue and preserve this highly important tradition, started in 1985.
- The JSC Editorial Board features distinguished top researchers in the area of Symbolic Computation and i look forward to interacting with them, during the the day-to-day operations of the journal.
- The JSC provides a comprehensive coverage of all aspects of Symbolic Computation. In the same vein, one can hardly do better than quote the JSC Founder:

“In my understanding, logic, mathematics, and software science form a coherent and indistinguishable magma of knowledge and methods”

– Bruno Buchberger, 2009

in “Hagenberg Research” <https://www.springer.com/gp/book/9783642021268>

- The AMS MathSciNet on-line database lists close to 2500 JSC published items, in the 35 years since the JSC’s inception by Bruno Buchberger in 1985. This is a colossal heritage and the recent publication of JSC’s volume 100 is a another milestone in this direction. JSC’s legacy for future generations of researchers in Symbolic Computation is undoubtedly captured in these 100 volumes and that is another reason that I am so enthusiastic about being a part of this endeavor in the future.

WHAT MAIN CHANGES AND NEW IDEAS YOU WANT TO IMPLEMENT WHEN YOU BECOME THE EDITOR?

- Over the past 15 years i acquired significant experience in negotiating with publishers, in order to benefit the journals i work for. It also became clear that these negotiations are more effective when they are conducted in (physical) face-to-face meetings. I am able to travel once or twice a year to Elsevier's headquarters to conduct similar meetings for the JSC.
- One of the main issues reported by Authors of accepted papers, is the lengthy on-line fist publication period of their papers, without page numbers, before the actual page numbers are assigned. This is true for dozens of Elsevier and JSC journals. One way to improve this situation, is to adopt the so-called Continuous Article Publication (CAP) model, in which an accepted paper is attributed page numbers immediately when it is accepted.
- I am aware that the JSC Editor and Editorial Board have been approached by the Open Access campaign <http://thecostofknowledge.com/>, with the request/suggestion that JSC leaves Elsevier and becomes an Open Access journal. I would be very interested in learning the views of JSC Editor(s) and Editorial Board members in this matter and i believe i can contribute to this multi-faceted and complicated discussion. In this respect, I have read with great interest a documented 4-page response letter to the Open Access campaign, written by Elsevier's Publisher Sweitze Roffel s.roffel@elsevier.com
- The official Elsevier JSC page <https://www.journals.elsevier.com/journal-of-symbolic-computation> lists the following quite impressive statistics and metrics currently: CiteScore: 1.04, Impact Factor: 0.876, 5-Year Impact Factor: 1.075. On the other hand, the Scopus classification of the JSC seems to be an issue in some countries where funding agencies exclusively use the Scopus classification in making grant decisions. I think it is important to understand how to improve the JSC Scopus classification, in order to help researchers and colleagues working in these countries.
- I feel it is important to try to instigate a same-day acknowledgment policy for incoming submissions. I was able to successfully implement this policy in two other journals i am involved with. I believe this policy will help to solidify even more the (already strong) relationship between JSC and its target audience. If elected JSC Editor, i intend to pursue this goal very vigorously.

WHAT DO YOU THINK COULD BE YOUR UNIQUE CONTRIBUTIONS TO THE DEVELOPMENT OF THE JOURNAL?

- I have a very substantial editorial experience, as documented in my short and full CV, over the past 20+ years, and I think the JSC will overall benefit from this experience.
- I enjoy editorial work very much, and i feel i am extremely skilled at it. Of course anyone can make mistakes, and there is always room for improvement, so i plan to rely heavily on the council of the Editorial Board (and other players in the community at large), when the need arises.
- Via my significant involvement with several Symbolic Computation and Computer Algebra conference series, <https://www.sigsam.org/Resources/ConferenceSeries.html>, i feel that i am ideally placed to solicit and generate JSC special issues.
Co-incidentally, the webage <https://www.sigsam.org/Resources/ConferenceSeries.html> was created under my own personal initiative, during my 4-year tenure as the Chair of ACM SIGSAM, in order to document the breadth, depth and incredible dynamism of the Symbolic Computation and Computer Algebra landscapes.