

# MARK BURGIN'S MEMORIAL



<http://www.intsci.ac.cn/znxshy/IS4SI>



IS4SI Summit 2023 Beijing, China, August 14 -18, 2023

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This year in February-March, in rapid succession, we lost three prominent members of IS4SI community

- Prof. Mark Burgin, President-Elect of IS4SI passed away on 18 February 2023
- Dr Robert Jahn, who had been Secretary General of IS4SI from the beginning until he stepped down in 2017, passed away on 8 March 2023
- Prof. Louis André (Loet) Leydesdorff, a distinguished member of our community passed away on 11 March 2023.

<http://is4si.org>.

# MARK BURGIN'S LEGACY



Professor Mark Burgin, a renowned mathematician, logician, computer scientist, and information theoretician, passed away on Saturday, February 18, 2023. He was President-Elect of the IS4SI, International Society for the Study of Information, where he served as Vice-President for Publications for many years and one of the main moving forces of the summit of IS4SI where he organized the conference series "Theoretical and Foundational Problems (TFP) In Information Studies". Prof. Burgin was a prominent figure in the IS4SI organization, a cohesive force, a highly respected colleague, and a friend.

<https://www.mdpi.com/about/announcements/5474>

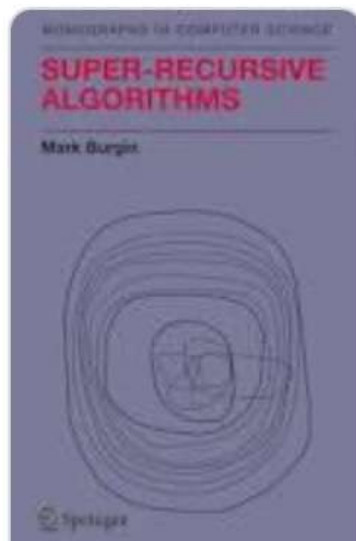
# MARK BURGIN'S LEGACY



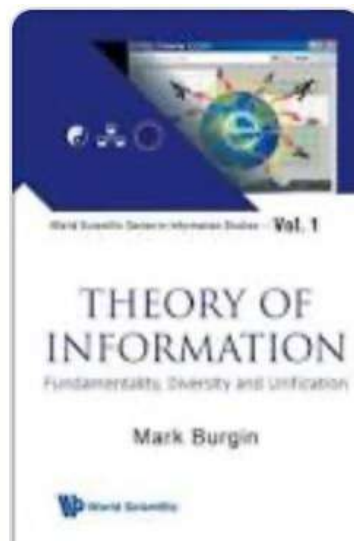
Dr. Burgin authored and co-authored over 500 papers and 21 books, including *Theory of Knowledge: Structure and Processes* (2016), *Structural Reality* (2012), *Hypernumbers and Extrafunctions: Extending the Classical Calculus* (2012), *Theory of Named Sets* (2011), *Theory of Information: Fundamentality, Diversity and Unification* (2010), *Measuring Power of Algorithms, Computer Programs, and Information Automata* (2010), *Neoclassical Analysis: Calculus Closer to the Real World* (2008), *Super-recursive Algorithms* (2005), *On the Nature and Essence of Mathematics* (1998), *Intellectual Components of Creativity* (1998), *Fundamental Structures of Knowledge and Information: Achievement of an Absolute* (1997), *Non-Diophantine Arithmetics or is it Possible that  $2 + 2 = 4$*  (1997), *Introduction to the Modern Exact Methodology of Science* (1994), *The Structure-Nominative Analysis of Theoretical Knowledge* (1992), and *The World of Theories and Power of Mind* (1992).

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# MARK BURGIN'S BOOKS



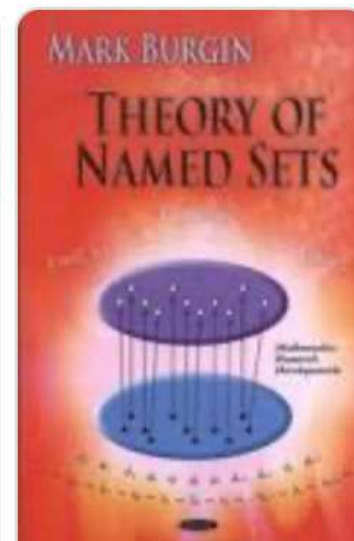
Super-recursive algorithms  
2005



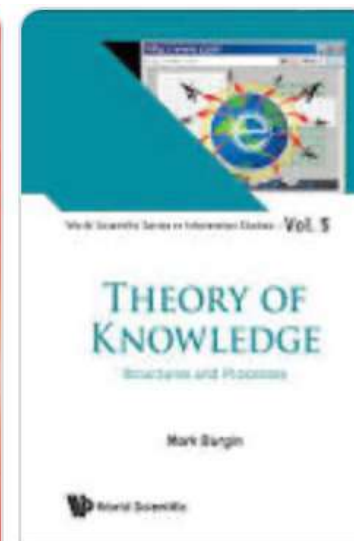
Theory of Information: F...  
2009



Information and Computation: ...  
2011

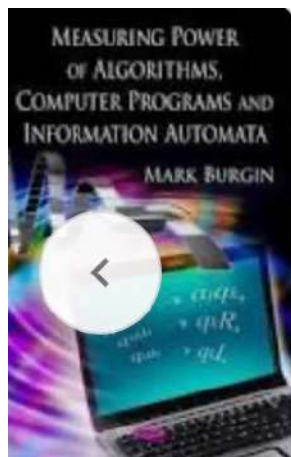


Theory of Named Sets  
2011

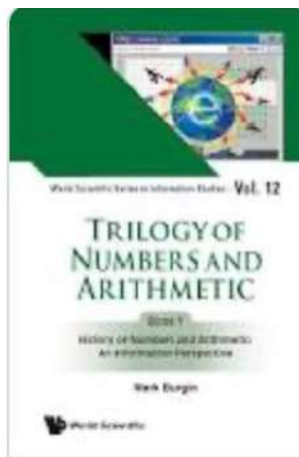


Theory of Knowledge: S...  
2016

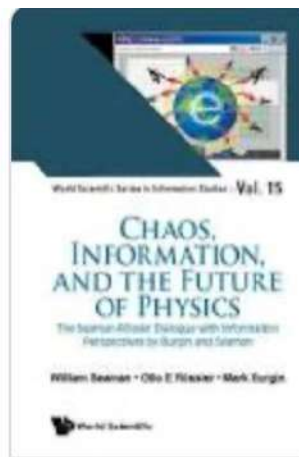
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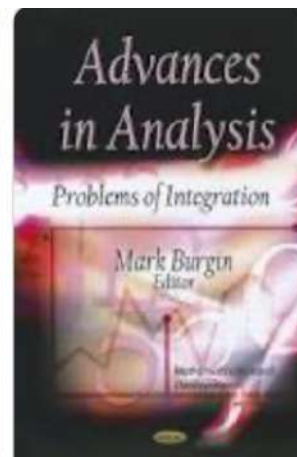
Measuring Power of Algo...  
2010



Trilogy Of Numbers And ...  
2022



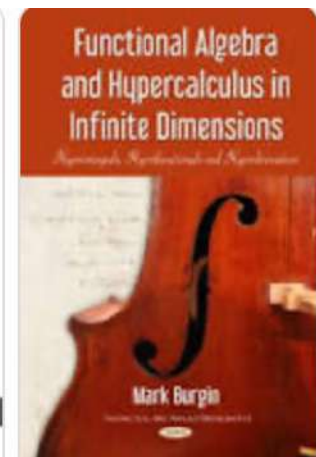
Chaos, Information, a...  
2023



Advances in Analysis: Prob...  
2012

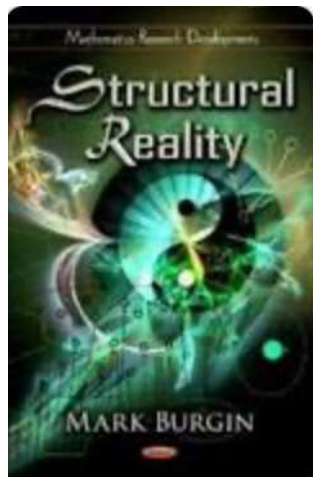


Semitopological Vector Space...  
2017

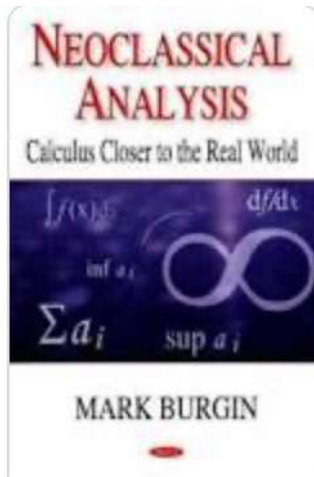


Functional Algebra and H...  
2017

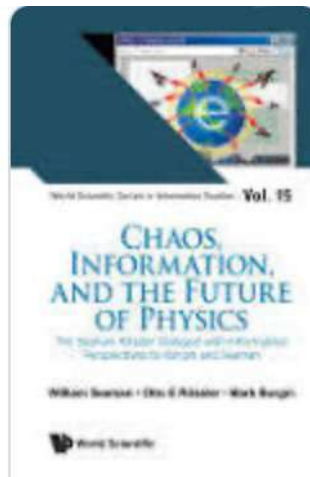
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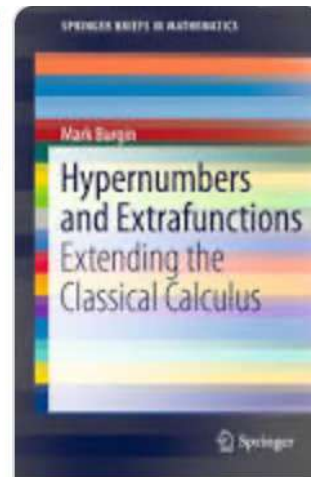
Structural  
Reality  
2011



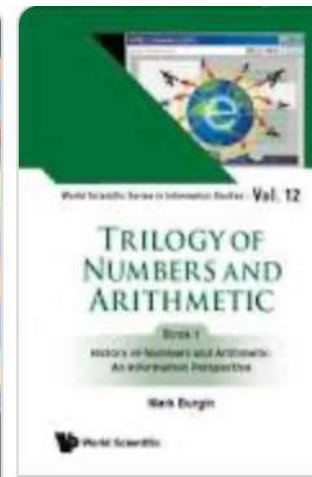
Neoclassical  
Analysis: Calc...  
2007



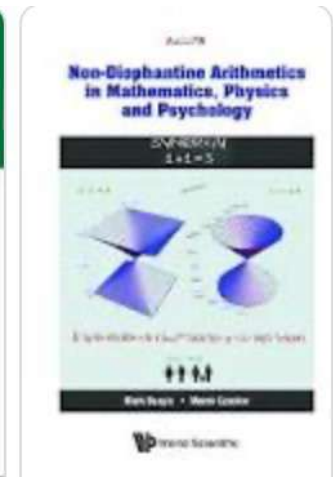
Chaos,  
Information, A...  
2023



Hypernumbers  
and Extrafunc...  
2012



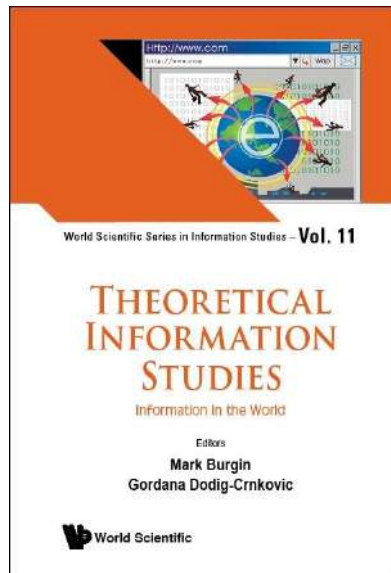
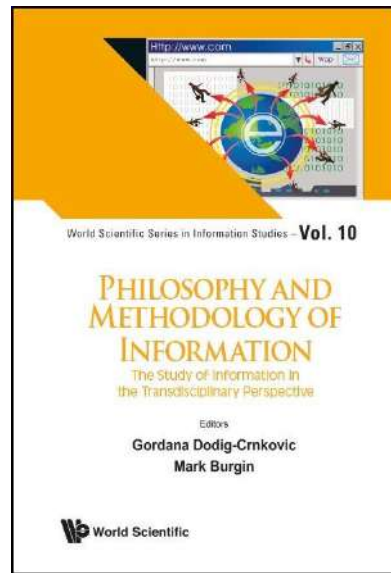
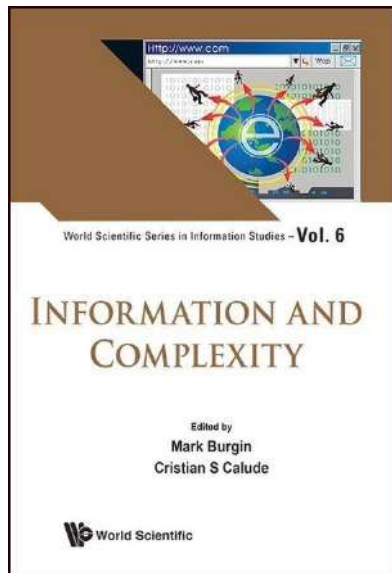
History of  
Numbers and ...  
2022



Non-diophantin  
Arithmetics In ...  
2020

Non-  
Phy

# MARK BURGIN'S BOOKS



# MARK BURGIN'S LEGACY



Prof. Burgin was the editor of [the World Scientific Series in Information Studies](#) with 14 already published volumes and two that are forthcoming. Prof. Burgin served as an Associate Editor of the MDPI journal [Information](#).

Mark Burgin was a member of the New York Academy of Sciences, a Senior Member of IEEE, the Society for Computer Modeling and Simulation International, and the International Society for Computers and their Applications. He was also an Honorary Professor of the Aerospace Academy of Ukraine, the Chair of the IEEE San Fernando Valley Computer and Communication Chapter, and the Secretary of the International Society for Computers and their Applications.

<https://www.mdpi.com/about/announcements/5474>



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# HOW I REMEMBER MARK

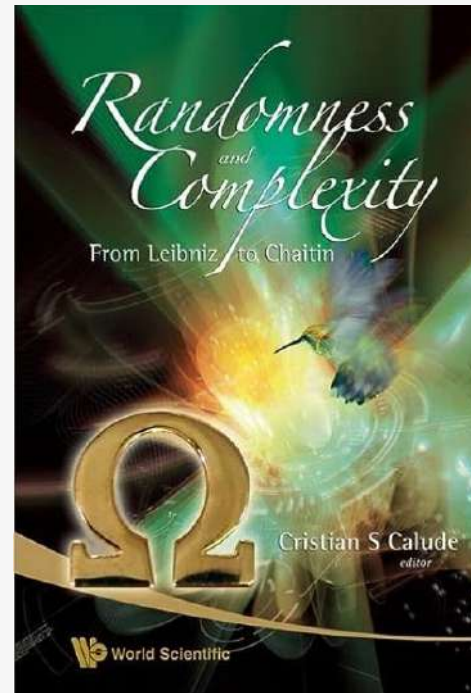
[2007 Stephen Wolfram's NKS conference  
celebrating Greg Chaitin 60<sup>th</sup> birthday](https://www.wolframscience.com/conference/2007/)

<https://www.wolframscience.com/conference/2007/>

<https://www.wolframscience.com/conference/2007/presentations/>

Mark Burgin, "From Cellular Automata to Grid Automata"

Gordana Dodig-Crnkovic, "Where Do New Ideas Come From? How Do They Emerge? Epistemology as Computation (Information Processing)"



Burgin, M. (2005) Super-Recursive Algorithms, Berlin: Springer  
- explores computing beyond the Turing limit.

# MARK BURGIN & GORDANA DODIG-CRNKOVIC PUBLICATIONS

Burgin M. Dodig-Crnkovic G., [A Systematic Approach to Artificial Agents](#), (preprint). [arXiv:0902.3513v1](#) 20 Feb 2009 Dodig-Crnkovic G. and Burgin M., [INFORMATION AND COMPUTATION](#) (book) [Google book](#). World Scientific Publishing Co. Series in Information Studies 2011.

Burgin M. and Dodig Crnkovic G., [From the Closed \(Axiomatic\) Universe to an Open World of Algorithmic Constellations](#), Proceedings of the AISB/IACAP World Congress 2012 Birmingham, UK, 2-6 July 2012. ISBN 978-1-908187-24-6011. <http://arxiv.org/abs/0910.5001>

Dodig-Crnkovic G. and Burgin M., [Unconventional Algorithms: Complementarity of Axiomatics and Construction](#), Special issue Entropy, 14(11), 2066-2080; Selected Papers from the Symposium on Natural/Unconventional Computing and its Philosophical Significance, doi:10.3390/e14112066 [http://www.mdpi.com/journal/entropy/special\\_issues/unconvent\\_computing](http://www.mdpi.com/journal/entropy/special_issues/unconvent_computing), 2012.

Burgin M. and Dodig Crnkovic G., [The Nature of Computation and The Development of Computational Models](#), [Computability in Europe 2013 \(CiE 2013\)](#) [CiE2013-Informal Proceedings.pdf](#), Univ. of Milano-Bicocca, 1-5 July 2013.

Mark Burgin, Gordana Dodig-Crnkovic, [Typologies of Computation and Computational Models](#) <http://arxiv.org/abs/1312.2447>

Burgin M. and Dodig-Crnkovic G., [From the Closed Classical Algorithmic Universe to an Open World of Algorithmic Constellations](#), In: [COMPUTING NATURE](#), Springer, Heidelberg, [SAPERRE book series](#), pp. 241-253, May 2013. [arXiv:1211.4547](#)

Burgin, M. and Dodig-Crnkovic, G., [A Taxonomy of Computation and Information Architecture](#). ECSA 2015 ASDS Workshop. In Proceedings of the 2015 European Conference on Software Architecture Workshops (ECSAW '15). ACM, New York, NY, USA. DOI=10.1145/2797433.2797440

## MARK BURGIN & GORDANA DODIG-CRNKOVIC PUBLICATIONS

Burgin, M. and Dodig-Crnkovic, G., [Computation as Information Transformation](http://sciforum.net/conference/isis-summit-vienna-2015/track-triangular). IS4IS Summit Vienna 2015, Vienna University of Technology, June 3-7, **2015**. <http://sciforum.net/conference/isis-summit-vienna-2015/track-triangular>

Burgin M. and Dodig-Crnkovic G., [Prolegomena to Information Taxonomy](https://is4si-2017.org/). Proceedings **2017**, 1(3), 210; doi:10.3390/IS4SI-2017-04035. Published: 9 June **2017**. IS4SI 2017 Gothenburg <https://is4si-2017.org/>

Gordana Dodig-Crnković and Mark Burgin, Editors (**2019**) [PHILOSOPHY AND METHODOLOGY OF INFORMATION](https://www.worldscientific.com/worldscibooks/10.1142/11190): The Study of Information in the Transdisciplinary Perspective. (Book) World Scientific Series in Information Studies, Vol 10. World Scientific, Singapore. <https://www.worldscientific.com/worldscibooks/10.1142/11190>

Dodig Crnkovic, G. and Burgin, M. (**2019**) [Introduction: The Study of Information in the Context of Knowledge Ecology](https://doi.org/10.1142/9789813277526_0001). In: Dodig Crnkovic & Burgin (2019) [PHILOSOPHY AND METHODOLOGY OF INFORMATION](https://doi.org/10.1142/9789813277526_0001): The Study of Information in the Transdisciplinary Perspective. World Scientific Series in Information Studies, Vol 10. World Scientific, Singapore. Pages:ix–xxii [https://doi.org/10.1142/9789813277526\\_0001](https://doi.org/10.1142/9789813277526_0001)

Dodig-Crnkovic, G. and Burgin, M. (**2020**) [Recent books delineating the emergent academic field of the Study of Information](#). Proceedings 2020, 47, 6.

Burgin, M. and Dodig-Crnkovic, G. (**2020**) [Modelling Computing Devices and Processes by Information Operators](#). Proceedings 2020, 47, 18.

# MARK BURGIN & GORDANA DODIG-CRNKOVIC PUBLICATIONS

Dodig-Crnković, G. and Burgin, M. Editors (2020) [THEORETICAL INFORMATION STUDIES: Information in the world](#) (Book) World Scientific Series in Information Studies, Vol 11. World Scientific, Singapore.  
<https://www.worldscientific.com/worldscibooks/10.1142/11191> ISBN: 978-981-3277-48-9 ISBN: 978-981-3277-48-9

Dodig-Crnković, G. and Burgin, M. Editors (2020) [Introduction](#). In: THEORETICAL INFORMATION STUDIES: Information in the world World Scientific Series in Information Studies, Vol 11. World Scientific, Singapore.  
<https://www.worldscientific.com/worldscibooks/10.1142/11191> ISBN: 978-981-3277-48-9

Burgin, M. and Dodig Crnkovic, G. (2020) [A Multiscale Taxonomy of Information in the World](#). In: Burgin & Dodig Crnkovic (2020) THEORETICAL INFORMATION STUDIES: Information in the world (Book) World Scientific Series in Information Studies, Vol 11. World Scientific, Singapore. <https://www.worldscientific.com/worldscibooks/10.1142/11191> ISBN: 978-981-3277-48-9, pp. 3-29.

Schroeder M.J., Dodig-Crnkovic, G. and Burgin, M. (2020) [IS4SI SUMMIT](#) Berkeley 2019. Proceedings 2020, 47, 1.  
<https://www.mdpi.com/2504-3900/47/1/1>