

CURRICULUM VITAE

Nikos A. Salingaros

**Professor of Mathematics
Urbanist and Architectural Theorist**

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Education

Ph. D. Physics 1978, State University of New York at Stony Brook
M. A. Physics 1974, State University of New York at Stony Brook
B. Sc. Physics *Cum Laude* 1971, University of Miami, Coral Gables

Collaborated with Christopher Alexander over a twenty-year period editing Alexander's "The Nature of Order"

Languages

English, French, Greek, Italian, and Spanish.

Positions in Academia

University of Texas at San Antonio: Assistant Professor of Mathematics 1983-1987; Associate Professor (tenured) 1987-1995; Professor 1995-present
University of Texas at San Antonio: Visiting Lecturer in the College of Architecture 2012-present
University of Delft, Holland, Adjunct Professor of Urbanism, 2005-2008
University of Rome III, Italy, Visiting Professor of Architecture
Tecnologico de Monterrey, Santiago de Queretaro, Mexico, Visiting Professor of Urbanism.

Architectural and Urban Projects

Commercial Center in Doha, Qatar, a \$82 million budget, 55,000 m² project commissioned in a Classical Greco-Roman/Rinascimento style, 2007-present. It is signed Hadi Simaan & Partners, José Cornelio da Silva, and Nikos A. Salingaros. This project was made public in September 2008

and is included in the 500th Centennial Exhibition "The New Palladians", inaugurated and organized by the Prince's Foundation, London, and supported by the ICA&CA, INTBAU, and RIBA. This show will travel around the world.

Urban Plazas Project for the City Government of Querétaro, Mexico, 2008-present. Applying a generative pattern for constructing new urban plazas throughout the city of Querétaro. Collaboration with Ramón Abonce-Meza, Carlos Arvizu-García, and Stefania Biondi, on the faculty of the Tecnológico de Monterrey, Campus Querétaro.

Advisor to the *Social Housing Research Group (Grupo de Estudos da Habitação de Interesse Social)*, Federal University of Santa Catarina, Brazil, which is working with the Brazilian federal government. Collaboration with faculty members Carolina Palermo-Szucs, Roberto Deoliveira, and Alina Santiago. Worldwide involvement with self-construction of social housing in an open-source environment with the *Peer-to-Peer Foundation*.

Collaborating with the Gruppo Salingaros in Italy (Ettore M. Mazzola, Gabriele Tagliaventi, Pietro Pagliardini, Stefano Serafini, Paolo Masciocchi, Antonio Caperna, Ciro Lomonte, Wittfrida Mitterer, Alessandro Pierattini, Stefano Silvestri, Alessia Cerqua, Milena De Matteis & Pietro Pini), Portugal (Jose Cornelio-da-Silva) and Britain (Sergio Porta) in an advisory role for new urban development in Italy and Kosovo.

Grants

Alfred P. Sloan Foundation Grant to study the Scientific Laws of Architecture, 1997-2000; extended to 2001

Onassis Foundation Senior Visiting Scholar, University Seminars Program, February 2013

International Initiatives Grant EVP/SIO, University of Texas at San Antonio, 2013 -- awarded but never used.

Participation on major architectural juries

Henry Lende Award for Design Excellence, San Antonio, Texas, "Houston Street Project", 12 March 2004.

Consulting

Urban Land Institute, 1025 Thomas Jefferson Street, N.W., Suite 500 West, Washington, D.C. 20007.

Thesis supervision and participation

A. Finished.

Antonio Caperna, Ph.D. in Urbanism, University of Rome III, Rome, Italy (2005)

Ina Klaasen, Ph.D. in Urbanism, Delft University of Technology, Delft, Holland (2005)

David Miet, Dipl.Eng. in Architecture, University of Lyon, France (2005)
Ernesto Philibert-Petit, Ph.D. in Urbanism, Delft University of Technology, Delft, Holland (2006)
Jannick Joye, Ph.D. in Philosophy, University of Ghent, Belgium (2007)
Damien Mikolajczyk, Dipl.Eng. in Architecture, University of Nancy, France (2007)
Nuria Hernández, M.Sc. in Urbanism, Tecnológico de Monterrey, Campus Querétaro, Mexico (2007)
Alessia Marcolongo, M.Sc. in Architecture, Technical University of Turin, Italy (2007)
Stefania Parei, M.Sc. in Architecture, Technical University of Turin, Italy (2007)
Laura Vuillermoz, M.Sc. in Architecture, Technical University of Turin, Italy (2007)
Claudia Czerkauer, Ph.D. in Urbanism, Vienna University of Technology, Vienna, Austria (2007)
Arthur van Bilsen, Ph.D. in Urbanism, Delft University of Technology, Delft, Holland (2008)
Pietro Pini, M.Sc. in Architecture, University of Florence, Italy (2009)
Aviva Peeters, Ph.D. in Architecture, Ben-Gurion University, Sede-Boqer, Israel (2009)
Emanuele Strano, M.Sc. in Urban Design, University of Strathclyde, Glasgow, United Kingdom (2011)

B. Not yet finished.

Myriam Mahiques, Ph.D. in Architecture, University of Buenos Aires, Argentina
Bart Maiorana, Ph.D. in Architecture, University of New South Wales, Sydney, Australia
Liran Tuchman, M.Sc. in Architecture, Tel-Aviv University, Israel
Tomasz Estkowski, Ph.D. in Architecture, Oslo School of Architecture, Norway.
Fouad Khan, Ph.D. in Architecture, Central European University, Budapest, Hungary.
Daniela Ottmann, Ph.D. in Architecture and Urban Planning, German University of Technology in Oman, Athaibah, Oman.

Student dissertations based on my research

Hassan Al Qubesi, M. Sc. Architecture, Jordanian University of Science and Technology, 2000
Uta Wolf, M. Sc. Architecture, University of Westminster, 2002
Emmanuel Riglis, Ph. D. Mathematical and Computer Sciences, Heriot-Watt University, Edinburgh, 2003
Sanjeev Sinha, Ph.D. Mechanical Engineering, University of Strathclyde, 2004
Remon M. Rooij, Ph.D. Urbanism, Delft University of Technology, 2005

Honors and Awards

Onassis Foundation Senior Visiting Scholar, University Seminars Program, February 2013
The *2012 Slater-Maguire Lecture*, Saint Margaret's Church, Winnipeg, Canada.
International Consultant to *CNU México -- Consorcio para el Nuevo Urbanismo*, 2012.
Scientific Committee of the *Institute for Advanced Architecture of Catalonia (IAAC)*, Barcelona, Spain, 2012.
Commencement Address, *Center for Byzantine & Modern Greek Studies, Queen's College, City University of New York*, 2011
Keynote lecture at the CRESC Annual Conference, Manchester, 2011.

Chosen as one of ten worldwide "Experts on Traditional Architecture" by *Fides et Forma*, 2011.
Keynote speaker, *The Athens Dialogues*, The Onassis Foundation, Athens, 2010
Ranked 11th in Planetizen's poll *The Top 100 Urban Thinkers*, September 2009.
Keynote speaker, *Complexity Theory of Cities Comes of Age Conference*, Technical University of Delft, Holland, September 2009.
Finalist for the 2009 Arthur Ross Award.
Distinguished Visitor, Ben-Gurion University, Israel, November 2008.
One of the *50 Visionaries who are changing your world* selected by the UTNE Reader, 2008.
Keynote panelist, *Forum for Urban Design*, New York City, 13 May 2008.
Keynote Speaker, *Brazilian and Ibero-American Conference on Social Housing*, Florianopolis, Brazil, 2006.
Committee of Honor, *International Network for Traditional Building, Architecture and Urbanism* (INTBAU).
Elected to the *International College of Traditional Practitioners*, the Prince's Foundation, London, in 2004.
Keynote Speaker, *5th Biennial of the European Congress of Town Planners*, Barcelona, Spain, 2003.
Board of Advisors, *Institute for Studies in Sacred Architecture* (ISSA)
Senior Member of the *Institute of Electrical and Electronics Engineers*
Listed in *Who's Who in Science and Engineering*
Listed in *Who's Who in Frontiers of Science and Technology*
Listed in *American Men and Women of Science*

Professional Service

Editorial Board, *Environment & Planning B*.
Editorial Board, *Cuadernos de Arquitectura y Nuevo Urbanismo* (Tecnologico de Monterrey)
Editorial Board of *Journal of Architectural and Planning Research*.
Editorial Board of *Resource for Urban Design Information*, Oxford Brookes University, England.
Associate Editor of *Nexus Network Journal*, 2001-2005.
Associate Editor of *Online Planning Journal*
Associate Editor of *Physics Essays*, 1995-2000
Member, Steering Committee of the *International Symposium on Current Trends in Fusion Research*, 1993-2000
Associate Editor of the *Hadronic Journal*, 1983-1985

Grant Reviewer for the US National Science Foundation, the Israel Science Foundation, and the Austrian Science Foundation (FWF)

Reviewer for numerous professional journals

Books published in various languages.

1. ANTI-ARCHITECTURE AND DECONSTRUCTION (Umbau-Verlag, Solingen, Germany, 2004; 209 pages) 3rd Edition (Umbau-Verlag, Solingen, Germany, 2008; 200 pages).
French edition: *Anti-Architecture et Deconstruction* (Umbau-Verlag, Solingen, Germany, 2005; 212 pages).
Italian edition: *Antiarchitettura e Demolizione* (Libreria Editrice Fiorentina, Florence, Italy, 2007; 228 pages).
Chinese edition published by *China Architecture and Building Press*, 2010.
Persian, Russian, and Spanish editions are in preparation.
2. PRINCIPLES OF URBAN STRUCTURE (Techne Press, Amsterdam, Holland, 2005; 252 pages).
Chinese edition published by *China Architecture and Building Press*, 2011.
Italian, Persian, and Spanish editions in preparation.
3. A THEORY OF ARCHITECTURE (Umbau-Verlag, Solingen, Germany, 2006; 278 pages).
Persian edition published by *Ministry of Housing and Urban Development, Center for Architectural and Urban Studies and Research*, 2008.
Chinese edition published by *China Architecture and Building Press*, 2010.
Spanish edition in preparation.
4. NO ALLE ARCHISTAR: IL MANIFESTO CONTRO LE AVANGUARDIE, in Italian, Libreria Editrice Fiorentina, 2009 (in Italian). The English edition: SAY NO TO STARCHITECTS! THE MANIFESTO AGAINST THE AVANT-GARDE is being prepared for publication.
5. TWELVE LECTURES ON ARCHITECTURE: ALGORITHMIC SUSTAINABLE DESIGN, *Umbau-Verlag*, Solingen, 2010.
Chinese edition will be published by *China Architecture and Building Press* in 2013.
6. P2P URBANISM, online book available for free download, 2010. Includes as a chapter "Favelas and Social Housing: The Urbanism of Self-Organization" (with David Brain, Andrés M. Duany, Michael W. Mehaffy & Ernesto Philibert-Petit).
ITALIAN EDITION will be published by *Libreria Editrice Fiorentina*.
PORTUGUESE EDITION: "Habitação social na América Latina: uma metodologia para utilizar processos de auto-organização" is available online and will be published by the *University Press of Rio Grande do Sul Press*, Porto Alegre, Brazil.
SPANISH EDITION: "Vivenda Social en Latino-América" is available online and will be published by the *Tecnológico de Monterrey Press*.
7. UNIFIED ARCHITECTURAL THEORY: FORM, LANGUAGE, COMPLEXITY, *Sustasis Press*, Portland, Oregon, 2013.
8. INTELLIGENCE-BASED ARCHITECTURE (with Kenneth G. Masden), will be published sometime in 2013.
9. DESIGN FOR A LIVING PLANET (with Michael Mehaffy), to be published in 2013 or 2014.

Publications in architecture, complexity, and urbanism.

55. "In Defence of Alexander", *HALI: The International Magazine of Antique Carpet and Textile Art* **78** (1995), 67-69.
- 56a. "The Laws of Architecture from a Physicist's Perspective", *Physics Essays* **8** (1995), 638-643.
- 56b. Spanish translation of 56a: "Las Leyes de la Arquitectura desde la Perspectiva de un Físico", *El hombre y la Máquina*, No 16, April 2001, pages 12-23. Republished in *La Simetria*, February 2002.
57. "Life and Complexity in Architecture From a Thermodynamic Analogy", *Physics Essays* **10** (1997), 165-173. Reprinted in Uta Wolf, *Chasing Butterflies: The Patterns of Chaos Theory and the Built Environment*, University of Westminster, 2002; pp. 63-74. Subject of Appendix 6 of Christopher Alexander's book *The Phenomenon of Life: The Nature of Order, Volume 1*, 2003.
- 58a. "Theory of the Urban Web", *Journal of Urban Design* **3** (1998) 53-71. Earlier version entitled "Mathematical Theory of the Urban Web", published by *RUDI -- Resource for Urban Design Information*, Oxford, England (July 1997), approximately 12 pages.
- 58b. Finnish translation: "Kaupunki Verkostona", *Tampere University of Technology, Institute of Urban Planning publication No. 33* (2000).
- 58c. Spanish translation: "Teoría de la Red Urbana" published online by *Arqchile.cl*, 2008.
- 58d. Portuguese translation published on the Web.
- 58e. Greek translation published by *Greekarchitects*, 13 September 2009)
59. "A Scientific Basis for Creating Architectural Forms", *Journal of Architectural and Planning Research* **15** (1998), 283-293.
60. "Urban Space and its Information Field", *Journal of Urban Design* **4** (1999), 29-49.
61. "Architecture, Patterns, and Mathematics", *Nexus Network Journal* **1** (1999), 75-85.
62. (N. A. Salingaros and B. J. West) "A Universal Rule for the Distribution of Sizes", *Environment and Planning B* **26** (1999), 909-923.
63. "The Life of a Carpet: An Application of the Alexander Rules", *Oriental Carpet and Textile Studies V*, edited by M. Eiland, Jr. and R. Pinner (International Conference on Oriental Carpets, Danville, California, 1999), pages 189-196.
64. (T. M. Mikiten, N. A. Salingaros and H-S. Yu) "Pavements as Embodiments of Meaning for a Fractal Mind", *Nexus Network Journal* **2** (2000), 63-74.

65. (A. Klinger and N. A. Salingaros) "A Pattern Measure", *Environment and Planning B* **27** (2000), 537-547.
66. "The Structure of Pattern Languages", *Architectural Research Quarterly* **4** (2000), 149-161.
- 67a. "Hierarchical Cooperation in Architecture, and the Mathematical Necessity for Ornament", *Journal of Architectural and Planning Research* **17** (2000), 221-235.
- 67b. French translation: "La Nécessité Mathématique de l'Ornement", *Revue BénéFique (Lyon)* **2** (2002), 151-174.
- 68a. "Complexity and Urban Coherence", *Journal of Urban Design* **5** (2000), 291-316.
- 68b. Italian translation: "Complessità e Coerenza Urbana", *Strumenti per la Pianificazione e Progettazione Sostenibile* (University of Rome) (2000).
- 69a. (Victor Padrón and Nikos Salingaros) "Ecology and the Fractal Mind in the New Architecture: A Conversation", *RUDI -- Resource for Urban Design Information* (2000), approximately 12 pages.
- 69b. Farsi translation, *KHANEH Quarterly* **4 & 5** (Winter & Spring 2003).
- 69c. "Fractals in the New Architecture", portions of 69a published as an article with figures, *Archimagazine* (2001), approximately 6 pages. Republished in *Katarxis No. 3* (September 2004).
- 69d. Italian translation: "I Frattali Nella Nuova Architettura", *Archimagazine* (2001), approximately 6 pages.
- * Interview (in French) with *Archicool -- Paris* (January 2001), approximately 4 pages.
70. (N. A. Salingaros and D. M. Tejada) "Modularity and the Number of Design Choices", *Nexus Network Journal* **3, No. 1** (2001), pages 99-106.
- * Book Review of Anthony Vidler's "*Warped Space. Art, Architecture, and Anxiety in Modern Culture*", *Journal of Urban Design* **6** (2001), pages 332-334. Reprinted as Part 5 of "Anti-Architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.
- 71a. "Remarks on a City's Composition", earlier version published by *RUDI -- Resource for Urban Design Information* (2001), approximately 14 pages. Extended version published by *Journal of Design Research* **4, Issue 1** (March 2004).
- 71b. Finnish translation of the first half of 71a: "Kaupunki ei todellakaan ole puu", *Yhteiskuntasuunnittelu -- The Finnish Journal of Urban Studies* **39** (2001), pages 68-76.
- 72a. (J. H. Kunstler and N. A. Salingaros) "The End of Tall Buildings", *PLANetizen* (September 2001), approximately 5 pages.
- 72b. Republished in: Bruce Ballenger, *The Curious Writer* (Pearson-Longman, New York,

2005), pages 249-254.

72c. Reprinted in: *Planetizen's Contemporary Debates in Urban Planning*, edited by Abhijeet Chavan, Christian Peralta & Christopher Steins (Island Press, Washington DC, 2007), pages 117-122.

72d. French translation: "La fin des bâtiments-tours", *Archicool* (October 2001), approximately 5 pages.

73a. Nikos Salingaros interviews Léon Krier: "The Future Of Cities: The Absurdity of Modernism", *PLANetizen* (November 2001), approximately 10 pages. Reprinted in *Urban Land Magazine* **61** (January 2002), 12-15.

73b. Italian translation, *Archimagazine* (2002), approximately 10 pages. Reprinted in *Il Covile* (2002). Reprinted as a Chapter of the book NO ALLE ARCHISTAR: IL MANIFESTO CONTRO LE AVANGUARDIE, in Italian, Libreria Editrice Fiorentina, 2009.

73c. Swedish translation, *Tvarsnitt* **Nr. 4** (2003).

73d. Spanish translation, *Ambiente* **No. 92** (Marzo de 2004).

74a. (N. A. Salingaros and T. M. Mikiten) "Darwinian Processes and Memes in Architecture: A Memetic Theory of Modernism", *Journal of Memetics -- Evolutionary Models of Information Transmission* **6** (2001), approximately 18 pages.

74b. Reprinted in *DATUTOP Journal of Architectural Theory* **23** (2002), pages 117-139.

75a. (Michael W. Mehaffy and Nikos A. Salingaros) "Geometrical Fundamentalism", *Plan Net Online Architectural Resources* (January 2002), approximately 15 pages.

75b. Italian translation: "Il Fondamentalismo Geometrico", *Professione Architetto* (2002), approximately 15 pages. Improved translation published in *Il Covile*, **No. 108** (2002). Reprinted in *L'Inventario della Fierucola* (Firenze) **Nos. 24-25-26** (Agosto 2003), pages 24-38. Chapter in the book NO ALLE ARCHISTAR: IL MANIFESTO CONTRO LE AVANGUARDIE, in Italian, Libreria Editrice Fiorentina, 2009.

76a. (Michael W. Mehaffy and Nikos A. Salingaros) "The End of the Modern World", *PLANetizen* (January 2002), approximately 3 pages.

76b. Republished by *Open Democracy* (March 2002).

76c. Republished by *Orthodoxy Today* (November 2007).

77. "A Missed Learning Opportunity", *PLANetizen* (September 2002), approximately 3 pages.

78a. "Twentieth-Century Architecture as a Cult", *INTBAU Essays*, **Essay No. 3** (November 2002), approximately 6 pages.

78b. German translation, *UMBAU-VERLAG* (April 2004), approx. 5 pages.

- 79a. "Anti-architecture and Religion", *Sacred Architecture Journal*, **Issue 7** (2002), 11-13.
- 79b. Portuguese translation: "Anti-arquitetura e Religião", *Brotéria* (Lisbon), **155** (November 2002), 381-388.
- 80a. (Nikos A. Salingaros and Michael W. Mehaffy) "Deconstructing The Decons: The World Trade Center Project Spotlights The Empire's Newest Clothes", *PLANetizen* (January 2003), approximately 3 pages.
- 80b. Republished in *Café l'Urbanité -- Architecture* (January 2003), and by *Southeastern University (Nanjing, China)* (2004).
- 80c. Shortened version published in *The American Enterprise* **13, No. 2** (March 2003), 13.
- 80d. Spanish translation: "El Nuevo Traje del Emperador", *Ambiente* **No. 90** (March 2003).
81. "Two Languages for Architecture", *Plan Net Online Architectural Resources* (February 2003), approximately 8 pages.
- 82a. (Brian Hanson and Nikos Salingaros) "Death, Life, and Libeskind", *Architectural Record Online -- In the Cause of Architecture* (February 2003), approximately 10 pages. Shorter version published as "Daniel Libeskind's Architecture of Death", *2Blowhards* (January 2003), approximately 4 pages.
- 82b. Farsi version, *KHANEH Quarterly* **6&7** (Summer & Autumn 2004).
- 82c. French and Italian translations published in my books.
83. (Michael Mehaffy and Nikos Salingaros) "Adaptive evolution, not modernism, produces architecture 'of our time'", *The Post and Courier* (Charleston) 6 April 2003, page 13A.
- 84a. "The Danger of Deconstructivism", *2Blowhards* (April 2003), approximately 8 pages (with an introduction by Michael Blowhard). Reprinted in "Anti-Architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.
- 84b. Italian version: "Il Pericolo del Decostruttivismo", *Il Covile* **No. 123** (February 2003), approx. 3 pages.
85. "Connecting the Fractal City", *Keynote address, Fifth Biennial of Town Planners in Europe* (Barcelona) (April 2003), approximately 17 pages. Section 7 entitled "'Small-World' Networks and the Fractal City" published by *PLANetizen* (October 2003), approximately 7 pages. Full paper published by *PLANUM -- The European Journal of Planning On-line* (March 2004), approximately 17 pages.
- * Interview with *ORF Vienna -- Austrian National Broadcasting Corporation*: "Connecting the Fractal City", May 2003. Interview was taped and broadcast in English -- German summary is posted on the web.

86a. "Pattern Language and Interactive Design", *Poiesis Architecture* (Toulouse) **No. 15** (2003), pages 385-405. Earlier version entitled "How the Pattern Language Defines a Geometry for Urban Interfaces", published in *Proceedings of the International Seminar: "Design With the Community"*, University of Rome III (2000), pages 15-21.

86b. French version, *Poiesis Architecture* (Toulouse) **No. 15** (2003), pages 385-405.

* Interview with *2Blowhards.com* (New York City): "A Week With Nikos Salingaros", May 2003. Text-only version (without photos and the numerous reader's comments) is available as a 20-page document. A Farsi version is available on Bahram Yousefi's online architectural magazine (Tehran).

87. "The Sensory Value of Ornament", *Communication & Cognition* **36, Nos. 3-4** (2003), pages 331-351.

88a. (L. Andrew Coward and Nikos Salingaros) "The Information Architecture of Cities", *Journal of Information Science* **30, No. 2** (2004), pages 107-118. Republished by *Internet Changes Everything* (January 2004).

88b. Catalan version, published in *MCRIT -- Sistemes de suport a la planificacio* (Barcelona) (December 2003), approx. 15 pages.

89. "The Derrida Virus", *TELOS Number 126* (2003), pages 66-82.

* "Salingaros on Kahn", *2Blowhards.com* (December 2003), approximately 4 pages.

90a. "New Paradigm Architecture", *Chaos and Complexity Letters* **Vol. 1, No. 2** (2004), pages 101-106.

90b. Reprinted in: Nicoletta Sala, Editor, *Chaos and Complexity in the Arts and Architecture* (Nova Science Publishers, New York, 2007), pages 129-133.

90c. "Charles Jencks and the New Paradigm in Architecture", longer version of 90a, appears as Part 2 of "Anti-Architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.

90d. Spanish version, *Ambiente* (Buenos Aires), **Number 97** (2006). Reprinted by *Arqa.com* (2006), and also by *Arqchile* (2006).

90d. Farsi version, *KHANEH Quarterly* (2005).

91a. "The New Acropolis Museum", *2Blowhards.com* (29 February 2004), approximately 5 pages. Republished in *Temì di Stefano Borselli* **No. 196** (4 March 2004). Republished in *I Fileleftheri* (5 March 2004). Republished in *Archimagazine* (16 April 2004). Reprinted as Part 10 of "Anti-architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.

91b. Spanish version, *FORMA* (4 March 2004).

91c. Italian version, *Archimagazine* (16 April 2004).

92. Book Review of "*The Nature of Order*", and an interview with Christopher Alexander (in English & French), *VOGUE HOMMES INTERNATIONAL* **15** (Printemps-été 2004), pages 116-119. English version reprinted as Part 12 of "Anti-Architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.
93. "Architectural Theory and the Work of Bernard Tschumi", published in 9 sections by *2Blowhards* (April-May 2004). Reprinted as Part 11 of "Anti-Architecture and Deconstruction", *Umbau-Verlag*, Solingen, 2004.
94. "Towards a Biological Understanding of Architecture and Urbanism: Lessons from Steven Pinker", book review of Steven Pinker's "The Blank Slate: The Modern Denial of Human Nature", *Katarxis N° 3* (September 2004), approximately 3 pages.
95. "Design methods, Emergence, and Collective Intelligence", *Katarxis N° 3* (September 2004), approximately 18 pages. Reprinted as Chapter 10 of *Principles of Urban Structure*, Techne Press, Amsterdam, Holland, 2005.
96. "Les gratte-ciel ont un effet destructeur sur la cité", *SCIENCES ET AVENIR No. 691* (September 2004), page 63 (in french).
97. "Towards a New Urban Philosophy: The Case of Athens", Chapter 20 of *Shifting Sense -- Looking Back to the Future in Spatial Planning*, edited by Edward Hulsbergen, Ina Klaasen & Iwan Kriens, Techne Press, Amsterdam, 2005, pages 265-280. Earlier version published in two parts as "City of Chaos" in *Greekworks.com* (May & June 2004).
- 98a. "Compact City Replaces Sprawl", in: *Crossover: Architecture, Urbanism, Technology*, Edited by Arie Graafland & Leslie Kavanaugh (010 Publishers, Rotterdam, Holland, 2006), pages 100-115.
- 98b. Spanish version: "La Ciudad Compacta Sustituye a la Dispersión", Chapter in: Francesco Indovina, Editor, *La Ciudad de Baja Densidad*, Diputació de Barcelona, Colección Estudios, Serie Territorio No. 1, Barcelona, 2007, páginas 481-498.
99. "Architectural memes in a Universe of Information", (both English and French versions) *Mondes Francophones*, January 2006.
100. "Imago et Civitas Diaboli", (in Italian) *Il Covile No. 300*, Speciale Architettura Religiosa (January 2006), approximately 3 pages. English version published in "Anti-Architecture and Deconstruction" 3rd Edition.
101. "La Scacchiera degli Stili Architettonici", (in Italian) *Il Covile, No. 320* (2006), approximately 15 pages. English version published in "Anti-Architecture and Deconstruction" 3rd Edition.
102. "Ara Pacis Augustae: evidenza d'un fenomeno architettonico in sviluppo", (in Italian), *Il Covile, No. 329* (2006), approximately 8 pages. Reprinted in *Il Domenicale*, 20 May 2008. English version published in "Anti-Architecture and Deconstruction" 3rd Edition.
103. (Nikos A. Salingaros and Kenneth G. Masden II) "Architecture: Biological Form and Artificial

Intelligence", *The Structurist*, **No. 45/46** (2006), pages 54-61.

104. (Nikos A. Salingaros and Kenneth G. Masden II) Review of Christopher Alexander's book: "The Luminous Ground: The Nature of Order, Book 4", *The Structurist*, **No. 45/46** (2006), pages 39-42.

* Review of Alessandro Aurigi's book: "Making the Digital City", *Journal of Urban Design*, **Volume 11, Issue 3** (2006), pages 374-376.

105. (Nikos A. Salingaros and Kenneth G. Masden II) "Restructuring 21st Century Architecture Through Human Intelligence", *Archnet-IJAR: International Journal of Architectural Research*, **Vol 1, Issue 1** (March 2007), pages 36-52. Reprinted online by *Greekarchitects.net* (19 February 2008).

106. (Nikos A. Salingaros and Kenneth G. Masden II) "Neuroscience, the Natural Environment, and Building Design", Chapter 5 in: Stephen R. Kellert, Judith Heerwagen, and Martin Mador, Editors, *Biophilic Design: The Theory, Science, and Practice of Bringing Buildings to Life* (Yale University Press, New Haven (2008), pages 59-83.

107a. "Architectural Cannibalism in Athens", *Orthodoxy Today* (20 November 2007). Republished with minor revisions online by *Greekarchitects.net* (28 November 2007). Republished in "Anti-Architecture and Deconstruction" 3rd Edition.

107b. Hungarian version of "Architectural Cannibalism in Athens" published online by *Építészfórum*, 2 March 2009.

108. "Urbanism for Life: Let Children Help Design our Cities", *Raise the Hammer* (27 November 2007).

109a. (Nikos A. Salingaros and Kenneth G. Masden II) "Intelligence-Based Design: A Sustainable Foundation For Worldwide Architectural Education", *Archnet-IJAR: International Journal of Architectural Research*, **Vol 2, Issue 1** (March 2008), pages 129-188.

109b. "Contro l'ecofobia, per un habitat umano", Italian version of two sections from "Intelligence-Based Design: A Sustainable Foundation For Worldwide Architectural Education", *Il Domenicale*, **No. 14** (5 April 2008), pages 6-7.

109c. Different section of "Intelligence-Based Design: A Sustainable Foundation For Worldwide Architectural Education" entitled "Politics, Philosophy, Critical Theory, and Human Perception" republished online in *World Architecture Community*, February 2009; reprinted online in *Archwatch*, February 2009.

110a. "Architettura Sacra Contemporanea: Religione o Nichilismo?" (in Italian), *Il Covile*, **No. 427** (January 2008).

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211. "Nuovi modelli urbani tra scienza ed etica", video lecture, *397o Fiera Vesuviana*, San Gennaro (Naples), 18 September 2010.

212. "The Fractal City", video lecture, *CityCamp London*, 8 October 2010.

213. "Ricostruire Corviale", Keynote video lecture, *Seminario sulla Trasformazione delle Periferie*, University of Ferrara, 21 October 2010.

214. "Principios de la Estructura Urbana", video lecture to the *Tecnologico de Monterrey, sede Queretaro*, 22 October 2010.

215. "P2P Urbanism", invited talk, *International Commons Conference* sponsored by the Heinrich Böll Foundation, Berlin, 1 November 2010.
216. "Human-scale urbanism", video lecture in italian, Conference *Rigenerare la Periferia Italiana*, Ascoli Piceno, Italy, 4 November 2010.
217. "Life and the Geometry of the Environment" invited talk at the *The Athens Dialogues, Inaugural Conference of the Onassis Foundation*, Athens, 27 November 2010.
218. "Return to the City: the Work of the Gruppo Salingeros in Italy", invited video presentation for the mayor of Rome Gianni Alemanno, *Projects for the International Workshop on the Roman Periphery*, 1 December 2010.
219. "Biophilia and New Urbanism", film (in Greek) with George Papanikolaou, *Greekarchitects*, 24 January 2011.
220. "Alexander's Fifteen Fundamental Properties", lecture, *Saint Mary's Hall School*, 21 April 2011.
221. "Architecture of Place and Peer-to-Peer Urbanism", lecture at the *Project for Public Spaces*, New York City, 24 May 2011.
222. "Form Languages and Classical Mouldings", lecture at the *Institute for Classical Architecture and Art*, New York City, 25 May 2011.
223. "Biophilia and the Quality of Life in Our Cities: Inspired by Classical Greek Ideas", Commencement Address, *Center for Byzantine & Modern Greek Studies, Queen's College, CUNY*, New York City, 26 May 2011.
224. "Participative Design and Pattern Languages", presentation of the book "Participative Design" by A. Giangrande & E. Mortola, *Gangemi Editore*, Rome, 30 June 2011.
225. "Network City", video presentation to the *IAAC -- Institute for Advanced Architecture of Catalonia*, Barcelona, 19 July 2011.
226. "Urban Computations and Genomics", Keynote address, *Framing the City Conference*, University of Manchester, 8 September 2011.
227. "La ciudad de las redes y el urbanismo de pares en pares", teleconferencia, *2o Congreso Internacional sobre la Vivienda Social*, Universidad Nacional de Córdoba, Argentina, 21 de Septiembre 2011.
228. "Public Spaces, New Urbanism, Smart Growth", invited talk, *The Philadelphia Society*, Cincinnati, 7-8 October 2011.
229. "Principles of Urban Structure", *International Lecture Series: Achieving a Sustainable Built Environment*, Vienna University of Technology, 3 November 2011.

230. "Niente Grattacieli a Roma", video per la *Conferenza Stampa sulla Commissione Grattacieli*, Comune di Roma, 15 Novembre 2011.
231. "Organizational Complexity", videolecture for the *Masters Program in Systems Engineering*, Universidad de los Andes, Bogotá, Colombia, 8 June 2012.
232. "Transformations: Architecture from Biology", invited lecture at the *IAAC -- Institute for Advanced Architecture of Catalonia*, Master in Advanced Architecture, Barcelona, 13 June 2012.
233. "Biourbanism: Theory and Practice", videolecture for the *International Society of Biourbanism Summer School*, "Neuroergonomics and Urban Design", Ardena/Rome Italy, 17 July 2012.
234. "Cities as Complex Systems", videolecture to the *Laboratory of Geographic Information Systems*, École Polytechnique Fédérale de Lausanne, Switzerland, 9 August 2012.
235. "Biology, the city and responsible design", *The 2012 Slater-Maguire Lecture*, Saint Margaret's Church, Winnipeg, Canada, 15 October 2012.
236. "Rethinking Urbanism in the Developing World", Invited lecture, Columbia University, New York City, 18 February 2013.
237. "Tradition and Modernity in the development of (contemporary) Athens and Rome", invited lecture, Center for Byzantine and Modern Greek Studies in cooperation with the Calandra Italian-American Institute, Queens College, City University of New York, 19 February 2013.
238. "Saving the best of New York from unsustainable development", invited lecture, Urban Studies Program, Queens College, City University of New York, 20 February 2013.
239. "Culture, Tradition and Modernity in Architecture and Urbanism", President's Roundtable Keynote Lecture, Queens College, City University of New York, 20 February 2013.
240. "Culture, Tradition and Modernity in Architecture and Urbanism", ICAA -- Institute for Classical Art and Architecture, New York City, 20 February 2013.
241. "Saving Greek Cultural Heritage from Globalization", Lecture to the Solon Society of Long Island, St. Paul Community Center, Hempstead, New York, 21 February 2013.
242. "Alexander's Fifteen Fundamental Properties", two guest lectures for Robert Baron's class, College of Architecture, University of Texas at San Antonio, 27 February 2013.
243. "Urban Complexity", invited lecture, Master and Doctoral Program in Complexity Sciences, University of Lisbon ISCTE, Lisbon, Portugal, 7 June 2013.

APPENDIX

Publications in mathematics and physics 1979-1997.

1. (N. Salingaros and M. Dresden) "Properties of an Associative Algebra of Tensor Fields. Duality and Dirac Identities", *Physical Review Letters* **43** (1979), 1-4.
2. "Realization and Classification of the Universal Clifford Algebras as Associative Lie-Admissible Algebras", *Hadronic Journal* **3** (1979), 339-389.
3. "Realization, Extension, and Classification of Certain Physically Important Groups and Algebras", *Journal of Mathematical Physics* **22** (1981), 226-232.
4. "Clifford, Dirac, and Majorana Algebras, and Their Representations", *Hadronic Journal* **4** (1981), 949-980.
5. "Electromagnetism and the Holomorphic Properties of Spacetime", *Journal of Mathematical Physics* **22** (1981), 1919-1925.
6. (Y. Ilamed and N. Salingaros) "Algebras With Three Anticommuting Elements. I. Spinors and Quaternions", *Journal of Mathematical Physics* **22** (1981), 2091-2095.
7. "Algebras With Three Anticommuting Elements. II. Two Algebras Over a Singular Field", *Journal of Mathematical Physics* **22** (1981), 2096-2100.
8. "On the Classification of Clifford Algebras and Their Relation to Spinors in n Dimensions", *Journal of Mathematical Physics* **23** (1982), 1-7.
9. (N. Salingaros and M. Dresden) "Physical Algebras in Four Dimensions. I. The Clifford Algebra in Minkowski Spacetime", *Advances in Applied Mathematics* **4** (1983), 1-30.
10. "Physical Algebras in Four Dimensions. II. The Majorana Algebra", *Advances in Applied Mathematics* **4** (1983), 31-38.
11. "Particle in an External Electromagnetic Field", *Physical Review* **D28** (1983), 2473-2476.
12. "Relativistic Motion of a Charged Particle, the Lorentz Group, and the Thomas Precession", *Journal of Mathematical Physics* **25** (1984), 706-716.
13. "The Relationship Between Finite Groups and Clifford Algebras", *Journal of Mathematical Physics* **25** (1984), 738-742.
14. (J. Froelich and N. Salingaros) "The Exponential Mapping in Clifford Algebras", *Journal of Mathematical Physics* **25** (1984), 2347-2350.
15. (N. Salingaros and Y. Ilamed) "Algebraic Field Descriptions in Three-Dimensional Euclidean Space", *Foundations of Physics* **14** (1984), 777-797.

16. (R. Ablamowicz and N. Salingaros) "On the Relationship Between Twistors and Clifford Algebras", *Letters in Mathematical Physics* **9** (1985), 149-155.
17. "The Gyrofrequency of a Charged Particle in a Constant Electromagnetic Field", *Nuovo Cimento* **B86** (1985), 1-16.
18. "Invariants of the Electromagnetic Field and Electromagnetic Waves", *American Journal of Physics* **53** (1985), 361-363.
19. "Particle in an External Electromagnetic Field. II. The Exact Velocity in a Constant and Uniform Field", *Physical Review* **D31** (1985), 3150-3156.
20. "Some Remarks on the Algebra of Eddington's E-numbers", *Foundations of Physics* **15** (1985), 683-691.
21. (N. Salingaros and G. P. Wene) "The Clifford Algebra of Differential Forms", *Acta Applicandae Mathematicae* **4** (1985), 271-292.
22. "The Gyrofrequency of a Charged Particle in a Constant Electromagnetic Field. II. The General Result", *Nuovo Cimento* **B90** (1985), 232-253.
23. "The Lorentz Group and the Thomas Precession. II. Exact Results for the Product of Two Boosts", *Journal of Mathematical Physics* **27** (1986), 157-162.
24. "On Solutions of the Equation $\text{Curl } \mathbf{a} = k \mathbf{a}$ ", *Journal of Physics A: Mathematical and General* **19** (1986), L101-L104.
25. "On Solutions of the Equation $\text{Curl } \mathbf{a} = k \mathbf{a}$. II. The Magnetic Force-Free Model", *Journal of Physics A: Mathematical and General* **19** (1986), L705-708.
26. "Clifford Algebras and the Vee Product", in: *Proceedings of the Fourteenth International Colloquium on Group-Theoretical Methods in Physics*, Y. M. Cho, editor (World Scientific, Singapore, 1986), pp. 257-260.
27. "Clifford Algebraic Symmetries in Physics", in: *Symmetries in Science II*, B. Gruber and R. Lenczewski, editors (Plenum, New York, 1986), pp. 467-470.
28. "Duality Rotations and Relativistic Charged-Particle Motions", *American Journal of Physics* **55** (1987), 352-356.
29. "Electromagnetism and the Holomorphic Properties of Spacetime", in: *Proceedings of the Fifteenth International Conference on Differential Geometric Methods in Theoretical Physics*, H. D. Doebner and J. D. Hennig, editors (World Scientific, Singapore, 1987), pp. 370-376.
30. "An Alternative Description of the Reversed-Field Toroidal Plasma Pinch, and Prediction of the Critical Pinch Parameter", *Hadronic Journal* **10** (1987), 109-116.

31. "Which are the Fundamental Magnetic Field Configurations in Nature?", *International Journal of Modern Physics* **B1** (1987), 1329-1349.
32. "An Amended Magnetohydrodynamic Equation Which Predicts Field-Aligned Current Sheets", *Astrophysics and Space Science* **137** (1987), 385-395.
33. "Magnetic Force-Free Configurations for Thermonuclear Fusion", *Physics Essays* **1** (1988), 92-101.
34. "Further Developments in the Theory of the Spheromak", in: *Proceedings of the Ninth U. S. Compact Toroid Symposium*, Seattle, 1989. Edited by A. L. Hoffman and L. C. Steinhauer (Spectra Technology, Bellevue, Washington, 1989), pp. 37-40.
35. "Origin of the Magnetic Confinement Force in the Homogeneous Z-pinch", *IEEE Transactions on Plasma Science* **17** (1989), 854-858.
36. "The Spheromak as an Axisymmetric Spherical Dynamo: Clarification of an Old Ambiguity", *Modern Physics Letters* **B3** (1989), 1285-1292.
37. "Lorentz Force and Magnetic Stress in Force-Free Configurations", *Applied Physics Letters* **56** (1990), 617-619.
38. (D. P. Singh, M. A. Harith, V. Paleschi, G. Tropiano, M. Vaselli, N. Salingaros, and E. Panarella) "The Spherical Pinch: Generalized Scaling Laws and Experimental Verification of the Stability of Imploding Shock Waves in Spherical Geometry", *Laser and Particle Beams* **8** (1990), 253-263.
39. "Optimal Current Distribution for Energy Storage in Superconducting Magnets", *Journal of Applied Physics* **69** (1991), 531-533.
40. "Magnetohydrostatic Equilibria and Force-Free States", *Physica Scripta* **43** (1991), 316-322.
41. "Fiber Theory: Evolution and Disruption in the Gaseous and Dense Z-pinch", *Physica Scripta* **43** (1991), 416-422.
42. (N. Salingaros and R. Carrera) "Electromechanical Description of Tokamak Plasma Operation by Fiber Theory", *Fusion Technology* **19** (1991), 1302-1306.
43. "A Simplified Approach to Pinch Equilibrium", *Plasma Physics and Controlled Fusion* **34** (1992), 191-202.
44. "Force-free Plasma Currents Driven by Electromagnetic Oscillations with \mathbf{E} parallel to \mathbf{B} ", *Physical Review* **A45** (1992), 8811-8815.
45. "General Construction of Force-Free Current Filaments", *Physical Review* **A45** (1992), 8816-8820.
46. "Fiber Theory and Cosmic Plasmas", *IEEE Transactions on Plasma Science* **20** (1992), 893-

47. (M. A. Sweeney, I. Alexeff, I. Brown, J. Glowienka, S. Gold, J. Maenchen, J. R. Roth, N. Salingaros, L. Steinhauer, and L. Sugiyama) "Statement by the Energy Policy Committee, Institute of Electrical and Electronics Engineers, on the FY-1993 Department of Energy Budget Request for Fusion Energy", IEEE Nuclear and Plasma Sciences Society News, No. 2, June 1992, 6-9. Reprinted in: Fusion Technology **23** (1993), 131-134; and in: Spherical Plasma Configuration Group Newsletter **2** No. 1 (1993), 37.
48. (N. Salingaros and R. Carrera) "Oscillation and Reconnection of Plasma Fibers in a Description of Tokamak Phenomena", Fusion Technology **23** (1993), 257-266.
49. (P. Lorrain and N. Salingaros) "Local Currents in Magnetic Flux Tubes and Flux Ropes", American Journal of Physics **61** (1993), 811-817.
50. "A Classification of Magnetohydrodynamic Generators with Cylindrical Symmetry", Europhysics Letters **24** (1993), 467-472.
51. "A Description of Self-exciting Dynamos in Cartesian and Cylindrical Geometries", Physics Letters A **185** (1994), 201-205.
52. "A Critical Comparison Between Magnetic and Inertial Confinement Schemes and their Geometries", Fusion Technology **27** (1994), 230-236.
53. (B. Coppi, C. Deutsch, E. Panarella, F. Pegoraro, R. F. Post, H. U. Rahman, N. Rostoker, J. R. Roth, N. A. Salingaros, G. Velarde, C. Yamanaka) "Report on the International Symposium Evaluation of Current Trends in Fusion Research", *Journal of Fusion Energy* **14** (1995), September Issue (pages 281-327).
54. (F. Giammanco, E. Panarella, N. A. Salingaros, D. P. Singh, M. Vaselli) "Spherical Pinch Research: Historical Background, Achievements, and Projections", in: *Proceedings of the First International Workshop on the Evaluation of Current Trends in Fusion Research*, Washington, DC 1994, edited by E. Panarella (Plenum Press, New York, 1997), pages 67-118.

Scientific presentations 1979-1997.

1. "Algebraic Derivation of Trace Identities in Quantum Electrodynamics", seminar, Physics Department, University of Rochester, January 1979.
2. "Derivation of Trace Identities in Scattering Theory without Matrices", seminar, Physics Department, Oxford University, England, June 1979.
3. "Classification of Clifford and Jordan Algebras", Physics Colloquium, University of Dortmund, Germany, July 1979.
4. "Realization and Classification of the Universal Clifford Algebras as Associative Lie-Admissible

Algebras", invited talk at the *Second Workshop on Lie-Admissible Formulations*, Harvard University, 1-8 August 1979.

5. "Construction and Classification of the Clifford Algebras", Physics Colloquium, University of Massachusetts at Boston, August 1979.

6. "Electromagnetism as an Extension of Holomorphy to Four-dimensional Spacetime", Mathematics Colloquium, University of Delaware, January 1980.

7. "Spacetime Implies Maxwell's Equations", contributed talk, American Physical Society New England Conference, University of Rhode Island, 19 April 1980.

8. "Spinors and the Intrinsic Geometry of Three-Dimensional Space", Society of Physics Students lecture, University of Massachusetts at Boston, April 1980.

9. "The Geometry of Clifford Algebras", seminar, Physics department, Case-Western-Reserve University, Cleveland, June 1980.

10. "Clifford, Dirac, and Majorana algebras, and their Representations", invited talk at the *Third Workshop on Lie-Admissible Formulations*, University of Massachusetts at Boston, 4-9 August 1980.

11. "A Matrix-free Method for Quantum Electrodynamics", Colloquium, Demokritos Nuclear Research Center, Athens, Greece, February 1981.

12. "Applications of Clifford Algebras to Theoretical Physics", Physics Colloquium, University of Crete, Iraklion, Greece, 7 April 1981.

13. "On the Classification of Clifford Algebras and Spinors", Mathematics Colloquium, University of Crete, Iraklion, Greece, April 1981.

14. "Applications of the Methodology of Theoretical Physics to Architectural Design: The Pattern Language of Christopher Alexander", invited talk at the *International Conference on Architecture*, University of Thessalonike, Greece, 4 June 1981.

15. "On an Extension of the Theorems of Frobenius and Hurwitz", invited talk at the *Fourth Workshop on Lie-Admissible Formulations*, Institute for Basic Research, Cambridge, Massachusetts, August 1981.

16. "Some Recent Applications of Clifford Algebras to Theoretical Physics", Physics Colloquium, Washington University, St. Louis, 14 December 1981.

17. "A History of Clifford Algebras, and their Application in Physics", Physics Colloquium, University of Miami, Coral Gables, 23 March 1982.

18. "Applications of Clifford Algebras in Physics", Physics Colloquium, University of Iowa, 5 April 1982.

19. "The Geometric Structure of Clifford algebras, and their Relation to Spinors", Mathematics Colloquium, Iowa State University, Ames, 13 April 1982.
20. "Clifford algebras as an Extension of the Frobenius and Hurwitz Theorems", Mathematics Colloquium, University of Iowa, Iowa City, 13 April 1982.
21. "A History of Clifford Algebras, and their Application in Physics", Physics Colloquium, University of Illinois at Chicago Circle, 21 April 1982.
22. "An Introduction to Gauge Theories", three invited seminars, Mathematics Department, University of Iowa, 24 June-1 July 1982.
23. "Classification of Clifford Algebras", contributed talk, *American Physical Society Meeting*, University of Maryland, November 1982.
24. "Applications of Clifford Algebras in Theoretical Physics", opening talk, *Joint Meeting of the Mathematical Association of America and the Society for Industrial and Applied Mathematics*, Iowa State University, April 22-23, 1983.
25. "A New Solution for the Motion of a Charged Particle in a Constant, Homogeneous Electromagnetic Field", Space Physics Seminar, University of Iowa, 4 May 1983.
26. "Construction and Applications of Clifford Algebras", Mathematics Colloquium, University of Texas at San Antonio, 14 June 1983.
27. "Relativistic Motion of a Charged Particle, the Lorentz Group, and the Thomas Precession", contributed talk at the *VIIth International Congress on Mathematical Physics*, University of Colorado, Boulder, 1-10 August 1983.
28. "Differential Forms and Clifford Algebras", contributed talk at the *VIIth International Congress on Mathematical Physics*, University of Colorado, Boulder, 1-10 August 1983.
29. "A Solution of a Class of Differential Equations in Clifford Algebras", invited talk at the *VIIIth Congress of Balkan Mathematicians*, Athens, Greece, 19-23 December 1983.
30. "Motion of a Charged Particle in an Electromagnetic Field", seminar, Politecnico di Torino, Italy, 12 January 1984.
31. "Particle in an External Electromagnetic Field", contributed talk, *American Physical Society Annual Meeting*, San Antonio, 30 January-2 February 1984.
32. "Invariants of the Electromagnetic Field and Electromagnetic Waves", Mathematics Seminar, University of Texas an San Antonio, 13 April 1984.
33. "Motion of a Charged Particle in an Electromagnetic Field", contributed paper, *XIIIth International Colloquium on Group Theoretical Methods in Physics*, University of Maryland, 21-25 May 1984.

34. "Some Applications of Clifford Algebras", Mathematics Colloquium, Trinity University, San Antonio, 4 September 1984.
35. "Applications of Clifford Algebras to Physics", Physics Colloquium, University of California at Davis, 7 January 1985.
36. "The Exponential Mapping in Clifford Algebras", contributed talk, *91st. American Mathematical Society Annual Meeting*, Anaheim, 7-13 January 1985.
37. "Inequivalence of the $+++$ Metric to the $---+$ Metric", Mathematics Seminar, University of Texas at San Antonio, 15 February 1985.
38. "The Gyration of a Charged Particle", contributed talk, *American Physical Society Meeting*, Texas Section, Rice University, Houston, 8-9 March 1985.
39. "About Clifford and Grassmann Algebras", seminar, Department of Theoretical Physics, University of Salerno, Italy, 22 May 1985.
40. "Review of Clifford Algebras in Physics", Physics Colloquium, University of Florence, Italy, 3 June 1985.
41. "Clifford Algebras and Differential Forms", seminar, Institute of Mathematics, University of Genova, Italy, 10 June 1985.
42. "Clifford Algebras and the Vee Product", seminar, National Institute for Nuclear Physics, University of Torino, Italy, 12 June 1985.
43. "Some Applications of Clifford Algebras", invited talk given at the *14th. International Colloquium on Group Theoretical Methods in Physics*, Seoul, Korea, 26-30 August 1985.
44. "Rotation Correction to Combined Lorentz Boosts", contributed talk, *American Physical Society meeting*, Texas Section, Texas A&M University, 8-9 November 1985.
45. "Magnetic Fields in Physics and Astrophysics", Society of Physics Students Lecture, University of Texas at San Antonio, 3 December 1985.
46. "On Solutions of the Equation $\text{Curl } \mathbf{a} = k\mathbf{a}$ ", contributed talk at the *92nd American Mathematical Society Annual Meeting*, New Orleans, 5-11 January 1986.
47. "Clifford Algebraic Symmetries in Physics", invited talk, *Symmetries in Science II*, Southern Illinois University, Carbondale, 24-26 March 1986.
48. "On Force-Free Magnetic Fields", contributed talk, *Symmetries in Science II*, Southern Illinois University, Carbondale, 24-26 March 1986.
49. "Motion of Electrically Charged Particles in a Magnetic Field", Society of Physics Students Lecture, University of Texas at San Antonio, 29 April 1986.
50. "Some Recent Applications of Clifford Algebras", Relativity Seminar, Enrico Fermi Institute,

University of Chicago, 20 June 1986.

51. "Existence of Force-Free Magnetic Fields", contributed talk at the *168th Meeting of the American Astronomical Society*, Iowa State University, Ames, 22-26 June 1986.

52. "Quantum Mechanical Projection Operators in the Clifford Algebra", Theoretical Physics Seminar, University of Dortmund, Germany, 21 July 1986.

53 "Electromagnetism and the Holomorphic Properties of Spacetime", invited talk, *XVth International Conference on Differential Geometric Methods in Theoretical Physics*, University of Clausthal, Germany, 28 July-1 August 1986.

54. "Clifford Algebras and their Role in Mathematics, Physics, and Technology", Relativity Seminar, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, 17 November 1986.

55. "Energy of Static Magnetic Field Configurations", invited talk, Special Section on Mathematical Physics, *93rd Annual American Mathematical Society Meeting*, San Antonio, Texas, 21-24 January 1987.

56. "Electromagnetic Waves as Duality Rotations", Clifford Algebra Seminar, University of Namur, Belgium, 25 May 1987.

57. "Some Physical Applications of Clifford Algebras", invited talk, Institute for Analysis, University of Ghent, Belgium, 26 May 1987.

58. "An Alternative Derivation of the Critical Toroidal Pinch Parameter", contributed talk, *Division of Plasma Physics of the American Physical Society*, 29th Annual Meeting, San Diego, California, 2-6 November 1987.

59. "Flux Conversion and the Taylor State", contributed paper, *U. S. -Japan Workshop on Plasma Turbulence*, University of Texas at Austin, 7-10 December 1987.

60. "Force-Free Magnetic Configurations for Thermonuclear Fusion", Physics Colloquium, University of North Texas, Denton, 16 February 1988.

61. "The Role of Clifford Algebras in Physics: A Broad Perspective", Theoretical Physics Seminar, University of North Texas, Denton, 17 February 1988.

62. "Clifford Algebras in Quantum Mechanics", Quantum Logics Seminar, Georgia Institute of Technology, Atlanta, Georgia, 27 April 1988.

63. "Minimum-Energy Magnetic States in the Spheromak", Plasma Physics Seminar, Princeton Plasma Physics Laboratory, Princeton, New Jersey, 19 May 1988.

64. "Magnetic Force-Free Configurations", contributed talk, *15th. IEEE International Conference on Plasma Science*, Seattle, Washington, 6-8 June 1988.

65. "General Description of Clifford Algebras", Theoretical Physics Seminar, University of Rochester, 9 September 1988.
66. "Plasma Strings in Astrophysics", Astrophysics Seminar, University of Rochester, 26 September 1988.
67. "Revised Stability of a Z-Pinch", seminar, Laboratory for Laser Energetics, University of Rochester, 26 October 1988.
68. "Internally Force-Free Current Surfaces", contributed talk, *30th. Annual Meeting of the American Physical Society*, Division of Plasma Physics, Hollywood, Florida, 31 October-4 November 1988.
69. "Improvement on the Approximations of the Scaling Laws for Spherical Pinch Experiments", contributed paper, *30th. Annual Meeting of the American Physical Society*, Division of Plasma Physics, Hollywood, Florida, 31 October-4 November 1988 (presented by E. Panarella).
70. "Revision of the Theory of Force-Free Minimum-Energy States", seminar, Institute of Plasma and Fusion Research, University of California at Los Angeles, 8 March 1989.
71. "Further Developments in the Theory of the Spheromak", contributed talk, *9th U. S. Compact Toroid Symposium*, Seattle, Washington, 14-15 March 1989.
72. "Clifford Algebras, Differential Forms, and Magnetic Fields", Mathematics Colloquium, Rochester Institute of Technology, 14 April 1989.
73. "MILO: An Algebraic Manipulation Program for the MACINTOSH Computer", invited talk at the *IVth. Topical Conference on the Applications of Computers to Teaching*, University of Texas at San Antonio, 21 July 1989.
74. "New Results in Magnetohydrostatics: Ideal Plasma as a High-Temperature Superconductor", contributed talk, *31st. Annual Meeting of the American Physical Society*, Division of Plasma Physics, Anaheim, California, 13-17 November 1989.
75. Panelist on: "Let's Bridge the Gap: Addressing the Crisis in Mathematics Education", *National Science Foundation Topical Conference*, San Antonio, Texas, 2 December 1989.
76. "The Spheromak as an Axisymmetric Spherical Dynamo", contributed paper at the *1990 IEEE International Conference on Plasma Science*, Oakland, California, 21-23 May 1990.
77. "The Theory of Fibers: A New Description of Plasmas", seminar, Spectra Technology, Bellevue, Washington, 25 June 1990.
78. "Electromechanical Description of Tokamak Plasma Operation by Fiber Theory", contributed paper, *Ninth Topical Meeting on the Technology of Fusion Energy*, Oak Brook, Illinois, 7-11 October 1990 (presented by R. Carrera).
79. "Electromagnetism and Clifford Algebras", Graduate Electrical Engineering Seminar, University

of Texas at San Antonio, 8 November 1990.

80. "Theory of Fibers: A New Description of Plasmas", contributed talk, *32nd. Annual Meeting of the Division of Plasma Physics, American Physical Society, Cincinnati, Ohio*, 12-16 November 1990.

81. "Preliminary Description of Tokamak Operation Using Fiber Theory", contributed paper, *32nd. Annual Meeting of the Division of Plasma Physics, American Physical Society, Cincinnati, Ohio*, 12-16 November 1990 (with R. Carrera).

82. "A Numerical Evaluation of the Spherical Pinch as a Possible Fusion Device", contributed paper, *32nd. Annual Meeting of the Division of Plasma Physics, American Physical Society, Cincinnati, Ohio*, 12-16 November 1990 (presented by E. Panarella).

83. "Towards a New Theory of Plasmas", contributed talk, *Winter Meeting of the American Physical Society, San Antonio, Texas*, 21-24 January 1991.

84. "Force-Reduced Configurations in Superconducting Magnets", Magnet Division Seminar, Superconducting Super Collider, Dallas, Texas, 25 March 1991.

85. "Clifford Algebras and their Applications to Physics", Theoretical Physics Seminar, University of North Texas, Denton, Texas, 15 April 1991.

86. "A New Theory of Plasmas", Physics Colloquium, University of North Texas, Denton, Texas, 16 April 1991.

87. "Lorentz Force and Magnetic Stress in Force-Free Configurations", Colloquium, National Institute for Fusion Science, Nagoya University, Japan, 5 July 1991.

88. "Fiber Theory in Fusion Plasmas and Superconducting Magnets", Physics Colloquium, Nihon University, Tokyo, Japan, 22 July 1991.

89. "New Developments Towards Thermonuclear Fusion", Mathematics Colloquium, Southern Methodist University, Dallas, Texas, 16 October 1991.

90. "Electromagnetic Field Theory of Nonlinear Complex Systems", Applied Mathematics Seminar, Southern Methodist University, Dallas, Texas, 1 November 1991.

91. "Oscillation and Reconnection of Plasma Fibers in a Description of Tokamak Phenomena", contributed talk, *33rd. Annual Meeting, Division of Plasma Physics of the American Physical Society, Tampa, Florida*, 8 November 1991 (presented by R. Carrera).

92. "Recent Developments Towards Thermonuclear Fusion", Nonlinear and Computational Physics Seminar, University of North Texas, Denton, Texas, 2 December 1991.

93. "Spin and the Fifth Dimension", Colloquium, Institute Henri Poincare, Paris, France, 7 January 1992.

94. "Fiber Theory for Tokamaks", Colloquium, FOM Institute for Plasma Physics, Nieuwegein, Holland, 16 January 1992.
95. "Solutions of the Equation $\mathbf{B} \times \text{Curl} \mathbf{B} = \mathbf{0}$ and Force-Free Magnetic Fields", talk given at the *Fifteenth Annual Texas Partial Differential Equations Conference*, Denton, Texas, 7-8 March 1992.
96. "An Overview of the Fusion Program", Colloquium, Energy Systems Research Center, University of Texas at Arlington, 1 May 1992.
97. "The Development of the Fiber Theory of Plasmas", invited talk, *Nineteenth IEEE International Conference on Plasma Science*, Tampa, Florida, 1-3 June 1992.
98. "Current-Carrying Plasmas and the Magnetic Field Ambiguity in Classical MHD Theory", contributed talk, *Nineteenth IEEE International Conference on Plasma Science*, Tampa, Florida, 1-3 June 1992.
99. "Fiber Theory Applied to the Inductive Spherical Pinch", contributed talk, *Nineteenth IEEE International Conference on Plasma Science*, Tampa, Florida, 1-3 June 1992.
100. "Mathematical Structure of Magnetic Fields", Mathematics Seminar, University of Texas at Arlington, Arlington, Texas 17 July 1992.
101. "Mathematical Structure of Magnetic Fields", contributed talk, *American Physical Society 34th Annual Meeting, Division of Plasma Physics*, Seattle, Washington, 16 November 1992.
102. "Fiber Theory and the New Plasma Physics", Physics Colloquium, North Dakota State University, Fargo, North Dakota, 31 March 1993.
103. "Mathematical Structure of Magnetic Fields", Mathematics Colloquium, North Dakota State University, Fargo, North Dakota, 1 April 1993.
104. "Magnetic Confinement in a Tokamak", contributed talk, *International Sherwood Fusion Theory Conference*, Dallas, Texas, 14-16 March 1994.
105. "The Spherical Pinch Program", invited talk, *International Symposium on Current Trends in Fusion Research*, Washington, DC, 14-18 November 1994.
106. "General Background on the Progress of Fusion", presentation to the Science and Engineering Advisory Council, University of Texas at San Antonio, 19 June 1995.
107. "Geometry of the Spherical Pinch", invited paper at the *Second Symposium on Current Trends in International Fusion Research*, Washington DC, 10-14 March 1997.
108. "Quantitative Measures for Mandibular Extraction", presentation to the Division of Plastic Surgery, University of Texas Health Science Center at San Antonio, 21 November 1997.
109. "A Contour Analysis of Mandibular Extraction", talk given at the San Angeles Hospital,

Mexico City by V. Zadoo on work done by N. A. Salingaros, J. R. Garza, and V. Zadoo, 12 December 1997.

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