

Curriculum Vitae

**SANDRA JUDITH LACH ARLINGHAUS, Ph.D.**

1964 Boulder Dr.

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**PUBLICATIONS PENDING, as of December 2011**

- Signed contract with CRC Press (division of Taylor and Francis) to serve as Editor and/or Author of a series of books entitled: Cartography, GIS, and Spatial Science: Theory and Practice. First book is in the works (co-authors Arlinghaus and Kerski) and others are being actively recruited.
- Co-author with Joseph Kerski (Education Manager, ESRI) of Spatial Math: Theory and Practice. The first book in the series listed above.
- Active member, Editorial Board, Geographical Analysis.
- Special Issue of Geographical Analysis on Graph Theory and Network Science. Scheduled for publication in December 2011.
  - Invited Guest Co-Editor (with William C. Arlinghaus)
  - Co-author of an article with William C. Arlinghaus
  - Contributor to an article by Frank Harary.
- Reviewer: Journal of Geographical Systems; Mathematical Reviews
- Display of published materials at The University of Michigan Library:
  - Shapiro Science Library. Cover selected to appear in the 5<sup>th</sup> annual competition, bringing to a total of 4, the number of covers selected over 5 years for the permanent exhibition.
  - Shapiro Library, lobby. Electronic files selected for display.

**EMPLOYMENT/ACTIVITIES**

- Adjunct (Full) Professor of Mathematical Geography and Population-Environment Dynamics, The University of Michigan, [School of Natural Resources and Environment](#), Ann Arbor, MI 48109, 1994-present. Dry appointment from 2008 forward.
  - [1992-1998](#): co-developed and co-taught, with William D. Drake, NRE545, Population-Environment Dynamics. Co-developed [associated written materials](#). These materials were used subsequently to form the basis of a handbook of curve fitting, the first in a three-part series on a book series contract I held with CRC Press.

- [1996-1997](#): Experimental Course, Spatial Analysis, Theory and Practice, NRE501/043. Created and taught this first SNRE GIS-based course. Student files: [Fall, 1996](#); [Fall, 1997](#).
- [1998-1999](#): Previous course awarded full course status as NRE530, [Spatial Analysis: Theory and Practice](#). Created and taught course. Student files: [Fall, 1998](#); [Fall, 1999](#).
- [1998-1999](#): [Spatial Analysis, Advanced Projects](#) (prerequisite NRE 530). NRE501/043. Created and taught course. Student files: [Winter, 1998](#); [Winter, 1999](#).
- [June, 2000](#): University of Chicago, Cartography/GIS workshop. Invited.
- [June 2001](#): University of Chicago, Cartography/GIS workshop. Invited.
- [2003-2005](#): SNRE faculty advisor in Peter Beier's Virtual Reality course, ENG477. Created projects, and directed students, within this existing course. Student files: [Fall, 2003](#); [Fall, 2004](#); [Fall, 2005](#).
- [2005, 2007, 2008](#): Co-taught course with Ann Larimore and Rob Haug, AAPTIS491, MENAS591, RCSS461: "Maps and Timelines in Play to Resolve Conflicts in the Eastern Mediterranean: Italy to Israel." Co-created and co-taught this course. Helped to develop associated teaching materials. Student files: [Winter, 2005](#); [Fall, 2007](#); [Fall, 2008](#). Co-author (with Ann Larimore and Rob Haug) of resultant: GEOMAT Guide.
- 2008: NRE600, Section 043, Spring half-term directed study leading to the submission of a contest entry to the Google Build Your Own Campus competition. Most of the buildings, including those created by SNRE students, have won Google Blue Ribbon award status and thus appear as part of the default loadset of Google Earth.
- Adjunct Professor, [College of Architecture and Urban Planning, University of Michigan](#), Spring, 1997; 2000-2005; Affiliated faculty, 1999-2005.
  - [2001, 2002, 2003](#): Maps and Decisions, UP402-696. Created and taught course. Student files: [Fall, 2001](#); [Fall, 2002](#); [Fall, 2003](#).
  - [2001, 2002, 2003](#): Geographic Information Systems (prerequisite UP 406). UP507. Created and taught course. Student files: [Winter, 2001](#); [Winter, 2002](#); [Winter, 2003](#).
- Founding Director, [Institute of Mathematical Geography \(IMaGe\)](#). IMaGe is an independent research institute, 1983-present.
- Founder and Editor, [Solstice: An Electronic Journal of Geography and Mathematics](#). Noted in a "Briefing" in *Science*, published by the AAAS, 29 November, 1991, p. 1291 (by Joe Palca) and in *Science News*, January 25, 1992, p. 61 in a report by Ivars Peterson. 1990-present. See: <http://www.imagenet.org/> for Solstice and for IMaGe archives.
- Member, Board of Trustees, [Community Systems Foundation](#), 1994-present; member Executive Committee, 2003-present.
- President, [Arlinghaus Enterprises](#), L.L.C., 1996-present.
- Electronic typesetting of mathematical notation (using Plain TeX). Typesetter of *Useful Optics* (Walter Welford) for the [University of Chicago Press](#).

- Adjunct Lecturer in Mathematics, Department of Mathematics, [University of Michigan, Dearborn](#); and, in Geography, Program in Geography, [University of Michigan, Ann Arbor](#), 1982-83.
- From Lecturer to Assistant Professor of Mathematics, Department of Mathematical Sciences, [Loyola University of Chicago](#), 1979-82.
- Lecturer in Mathematics, [Department of Mathematics, Ohio State University, Columbus](#), 1978-79.
- Visiting Assistant Professor of Geography, [Department of Geography, Ohio State University, Columbus](#), 1977-78.
- Free-lance cartography.
- Crossword puzzle creator.

## **OTHER ACTIVITIES**

- Co-Chair with William C. Arlinghaus and Ronald Horwitz, Women's and Seniors' Team Trials, United States Bridge Federation, Detroit Renaissance Center, June 2011.
- Co-Chair, with William C. Arlinghaus and Ronald Horwitz, Compuware 2008 Sprint North American Bridge Championship, Detroit Renaissance Center, March 6-16, 2008. American Contract Bridge League. This tournament brought together competitors from 30 different nations. It brought over 8 million dollars in business to the Detroit area and was universally heralded as one of the best run tournaments by both staff of the parent American Contract Bridge League and by its Board of Directors.
- City of Ann Arbor Planning Commission, 1995-2003 served as member, Secretary, Vice-Chair, and Chair of City Planning Commission. Also, member Ordinance Revisions Committee, 1995-2003; Co-vice-chair, Northeast Area Master Plan Citizens Advisory Committee, 2000-2001; member Master Planning Committee, 2002-2003.
- Member, Neighborhood Watch Advisory Board, City of Ann Arbor Police Department (also registered block captain), 2001-2006.
- Member, City of Ann Arbor Environmental Commission, 2000-2003; member Water Committee.
- Director, Spatial Analysis Division, and Director of Fellowship Training Division, [Community Systems Foundation](#) (International NGO with principal partner of UN, non-profit, tax-exempt, 501(c)3), Ann Arbor, MI. 1996-2002.
- Founder, [International Society of Spatial Sciences](#), non-profit, a division of Community Systems Foundation, 1995-present.
- Reviewer, [Mathematical Reviews](#), 1991-present.

## **EDUCATIONAL HISTORY**

- Ph.D. (Location Theory, or more broadly, Theoretical Geography), [University of Michigan](#), Geography, 1977. Advisor: Waldo R. Tobler. Dissertation co-Chairmen: Waldo R. Tobler and John D. Nystuen. Outside member: Andreas

- Blass (Department of Mathematics). Dissertation title: "On Geographical Network Location Theory." (Grade point average: "A")
- M.A., Wayne State University, Geography, 1976. Advisor: Jack A. Licate. Thesis title: "Graph Theory in Geography: A Survey of Previous and Potential Uses."
  - Graduate study in Mathematics, specializing in Graph Theory, [Wayne State University](#). Advisor: Geert Prins. (Full--time student in program leading to Ph.D., 1968-70)
  - Graduate study in Mathematics, specializing in Geometry, [University of Toronto](#). Advisor: H. S. M. Coxeter. (Full--time student in program leading to Ph.D., 1966-67)
  - Graduate study in Mathematics, [University of Chicago](#). (Full--time student in program leading to Ph.D., 1964-66; GRE's, 99th percentile, math., verbal, aptitude; 92nd percentile advanced math achievement.) Advice on a continuing basis over many years from Saunders Mac Lane; Advisor assigned: Alberto Pedro Calderon.
  - A.B. Mathematics, [Vassar College](#), 1964. Minor: Zoology. Second (unofficial) minor in History. (Combined SAT's 1400+ on two tests)
  - Diploma, [University of Chicago Laboratory Schools](#), (top 10 %), 1960. Participant in "Sophomore Project" and Seminar, as written about by Herbert A. Thelen in *Education and the Human Quest*, University of Chicago Press, 1960, 1972. In pages 90 to 96, I am "Jane."
  - Education in Paris, France (with parents): [Alliance Francaise](#), Paris, summer school, 1956. [Ecole Alsacienne](#), 1955-56. Petit Ecole du Pere Castor, 1952-53. [American School of Paris](#), 1949. Resident, 1950.
  - French---Advanced Pass, Univ. of Michigan Language Exam, 1976.
  - German---Advanced Pass, Univ. of Chicago Language Exam, 1965.
  - Training course on Xerox 9500 from a representative of Xerox, 1987.
  - Electronic typesetting using [TeX](#), 1988.
  - Producer, Ann Arbor Community Access Television, 1988.
  - Junior Life Saving, American Red Cross, 1950s. One save, recorded in Minnesota.

## **AWARDS, CITATIONS, AND HONORS**

- Lifetime Charity Foundation Award, American Contract Bridge League.
- Over 50 blue ribbons awarded by Google for 3D buildings in Ann Arbor, almost all of which are now part of the default loadset in Google Earth.
- Continuing honor as a "Featured Modeler" in the Google 3D Warehouse.
- *Who's Who in America*. Marquis. Biography. 1995-present
- *Who's Who in the World*. Marquis. Biography. 1993-present
- Huron Chase Condominium Association. Certificate of Appreciation
- Goodwill Award, Michigan Bridge Association, 2011 (Annual award given to one individual each year).
- Invited (April, 2008) by Google educational division head to serve as the representative of higher education at the Google SketchUp "Basecamp" at the GooglePlex in Mountain View, CA. Unable to accept invitation.

- Honored at ACBL Goodwill Banquet in Detroit as one of three special honorees, March 10, 2008, Aileen Osofsky, host. Presentation at the Detroit Marriott, Renaissance Center, Detroit.
- Participation in Google “Build Your Own Campus” competition as leader of the only University of Michigan team to enter; May, 2007.
- Invited participation, Pirelli INTERNETional Award Competition, 2007.
- Ann Arbor Police Department, Volunteers in Police Service.
- Invited participation, Pirelli INTERNETional Award Competition, 2006. Current issue of *Solstice*, An Electronic Journal of Geography and Mathematics submitted (includes much virtual reality, movies, sound...)
- Lifetime Goodwill Award, American Contract Bridge League.
- Invited submission to Pirelli INTERNETional Award; SemiFinalist, 2003 competition (in top 80, worldwide, of over 1000 entries): for a section from a book entitled *Spatial Synthesis*. May, 2004. Entire Ebook published, June, 2005: [Institute of Mathematical Geography](#).
- Award, "The President's Volunteer Service Award." March 11, 2004.
- Invited submission to Pirelli INTERNETional Award; Finalist, 2002 competition (in top 20, worldwide of over 1200 entries): for book co-authored and published by Wiley, noted below. May, 2003.
- Invited submission to Pirelli INTERNETional Award; SemiFinalist, 2001 competition (in top 80, worldwide, of over 1000 entries): for [Solstice: An Electronic Journal of Geography and Mathematics](#). May, 2002. *Graph Theory and Geography: an Interactive View E-Book*, equal co-authors with William C. Arlinghaus, Frank Harary. John Wiley and Sons, New York, April, 2002.
- *Community Service Award, 1999*. Awarded by the City of Ann Arbor; I was the only "citizen" to receive such an award, as noted by the Mayor.
- *American Men and Women of Science*, 1989 and later.
- *Dictionary of International Biography*, International Biographical Centre, Cambridge, England, 22nd Edition, 23rd Edition, 28th Edition (1999-2000).
- *2000 Outstanding Scholars of the Twentieth Century, 1999-2000*, International Biographical Centre, Cambridge, England
- *Outstanding People of the 20th Century*, International Biographical Centre, Cambridge, England (1999-2000).
- *International Woman of the Millennium, 1999*. International Biographical Centre, Cambridge, England.
- *500 Leaders of Influence*, American Biographical Institute, 1999-2000.
- *Strathmore Who's Who*. 1999.
- *Who's Who in the Media and Communications*, 1997, Marquis.
- *Who's Who in American Education*, 1992.
- Other biographical citations and awards arranged by publisher or grantor:
  - *Marquis Who's Who of American Women; Who's Who in the Midwest*
  - International Biographical Centre (Cambridge, England) *The World Who's Who of Women, International Who's Who of Intellectuals, Most Admired Men and Women of the Year, 1992/93*, Twentieth Century Award for Achievement (Literature, 1993), International Cultural Diploma of Honor (March, 1993), World Intellectual of 1993, International Woman of the Year, 1991-92.

- American Biographical Institute (Raleigh, North Carolina) *International Directory of Distinguished Leadership, 5000 Personalities of the World, International Who's Who of Contemporary Achievement, Personalities of America, Two Thousand Notable American Women, Five Hundred Leaders of Influence, International Who's Who of Professional and Business Women*, Certificate of Recognition for Outstanding Professional Accomplishments, Distinguished Leadership Award for Outstanding Service to Mathematical Geography (1992), Key Award for Success in Research (1992-93), Silver Shield of Valor, 1991-92.
- Honorary Member, Advisory Council, International Biographical Centre, Cambridge, England--1992-present.
- Honorary Appointment, Research Board of Advisors, National Division, American Biographical Institute, Raleigh, North Carolina. 1992-
- University Fellowship, non-traditional, University of Michigan, 1976-77.
- Graduate Teaching Fellow in Geography, University of Michigan, 1975-77.
- Graduate Teaching Assistant in Geography, Wayne State University, 1974.
- Graduate Teaching Assistant in Mathematics, University of Toronto, 1966-67.

## **INVITED AND CONTRIBUTED ADDRESSES AND LECTURES**

University of Chicago; University of California (Berkeley); Ohio State University; University of Michigan; Syracuse University; University of Northern Iowa; American Mathematical Society; Association of American Geographers; Regional Science Association; Transportation Research Board of the National Research Council (National Academies of the Sciences and of Engineering); Midwest Graph Theory Conference, North American Simulation and Gaming Association.

## **CONFERENCES, PAPERS PRESENTED, AND DEMONSTRATIONS**

- American Contract Bridge League, Board of Directors, 2009-2011. Chair, Technology Committee. Involved numerous presentations over two years.
- October 2011: Conference co-organizer and participant, Community Systems Foundation, Ninth Annual Conference held in the Drake Memorial Room, Dana Building, The University of Michigan.
- April 2011: Conference organizer and participant, Third Annual GoogleEarth Day, held in SNRE.
- August 5-6, 2010. participation with Dan Griffith in a conference in Poznan, Poland: "Growth of cities: fractality and sustainability." Joint paper with Griffith on fractal growth and non-Euclidean geometry.
- Contributed work with Ann Larimore and Robert Haug; numerous talks.
- October 2010: Conference co-organizer and participant, Community Systems Foundation, Eighth Annual Conference held in the Drake Memorial Room, Dana Building, The University of Michigan.

- April 2010: Conference Organizer and participant, Second Annual GoogleEarth Day, held in SNRE.
- October, 2009: Conference co-organizer and participant, Community Systems Foundation, Seventh Annual Conference held in the Drake Memorial Room, Dana Building, The University of Michigan.
- April 2009: Conference Organizer and participant, First Annual GoogleEarth Day, held in SNRE.
- October, 2008: Conference co-organizer and participant, Community Systems Foundation, Sixth Annual Conference held in the Drake Memorial Room, Dana Building, The University of Michigan.
- December, 2008. Invited talk. Michigan State University, Department of Geography. <http://deepblue.lib.umich.edu/handle/2027.42/61423>
- November, 2008. Contributed work with Ann Larimore and Robert Haug presented to a middle eastern conference in Washington, D. C.
- November, 2008. Contributed participation for development of community projects, American Contract Bridge League, Boston, MA.
- October, 2008. Conference participant and poster presenter: Google Conference, 1<sup>st</sup> Google conference in Scientific Applications. Ann Arbor: The University of Michigan.
- October, 2007: Conference co-organizer and participant, Community Systems Foundation, Fifth Annual Conference held in the Drake Memorial Room, Dana Building, The University of Michigan.
- Contributed talk with Ann Larimore and Rob Haug, Annual meeting of Association of American Geographers, Boston, April 2008.
- Presentation of Google projects to Susan Pollay, Executive Director, Downtown Development Authority, City of Ann Arbor and to Matthew Naud, Environmental Coordinator, City of Ann Arbor, 3D Laboratory, Duderstadt Center.
- 3D Atlas of Ann Arbor: “Archimedes in Ann Arbor?” demonstration at the Duderstadt Center to Tracy Davis, Ann Arbor News, and Vivienne Armentrout, Ann Arbor Observer
- 3D Atlas of Ann Arbor: “Archimedes in Ann Arbor?” demonstration at the Duderstadt Center to the Board of the League of Women Voters, including Shirley Axon and Judith Mich.
- October, 2006: Conference Organizer, Community Systems Foundation, Fourth Annual Conference, held in the Drake Memorial Room, Dana Building, The University of Michigan.
- October, 2006: 3D Atlas of Ann Arbor.
- October, 2006: Larimore, Ann E.; Haug, Robert; and Arlinghaus, Sandra L. GEOMAT: presentation and report on trial course before East Lakes Division of the Association of American Geographers. Toledo, Ohio.
- March, 2006: Unleashing the Power of GIS/GPS. Arlinghaus, Sandra L. (Invited Program Chair), John Corbett, Joseph J. Kerski, Teri Landrum, and Carol Miller. Workshop co-sponsored by Taylor and Francis and AAG, March 6 and 7, Palmer House, Chicago, IL.
- March, 2006: Sessions on 3D mapping in the conference above.

- March, 2006: GEOMAT Larimore, Ann E.; Arlinghaus, Sandra L.; and Haug, Robert. GEOMAT: presentation and report on trial course before Association of American Geographers. Chicago, Illinois

## **PUBLISHED WORK**

**See listing at end of this document.**

## **REVIEWS OF PUBLISHED WORK and MEDIA EXPOSURE**

*Science (AAAS)* (29 November, 1991, p. 1291, report by Joseph Palca); *Science News* (January 25, 1992, p. 61, report by Ivars Peterson); *Mathematical Reviews (AMS)*; *Newsline: Current Research in Public Transportation Development (TRB/NRC/NAS)*, National Academy Press; *The American Mathematical Monthly (MAA)*; *Journal of Regional Science*; *Graduating Engineering Magazine*; *Harvard Technology Window*; *Zentralblatt fur Mathematik*, Springer-Verlag (Berlin); *Newsletter of the Transportation Specialty Group of the Association of American Geographers*; *Books in Print* (R. R. Bowker); *Literary Market Place* (R. R. Bowker); Michigan Council of the Arts; Archives of American Art (Smithsonian Institution); Nova; Ann Arbor Community Access TV; *Ann Arbor News*; *Columbus Dispatch*, name inscribed on sculpture involving the Bering Strait; (of IMaGe documents other than mine: *Mathematics Magazine*, *Journal of Classification*, *Newsletter of the Urban Geography Specialty Group of the AAG*)

## **CONSULTING/GRANT EXPERIENCE: NATIONAL AND INTERNATIONAL**

- 2011: grant application submitted to Gates Foundation.
- 2010-2011: grant application with Ann Larimore and others on a project in Detroit; results pending.
- NSF grant applicant with John Nystuen and others, Taubman College of Architecture and Urban Planning (UM), 2004. Not funded.
- with Paul Richards, School of Natural Resources (UM). Not funded.
- with Bob Beckley, 2002. Not funded.
- NSF grant; participant in a small part (in an advisory capacity only) with Paul Mohai, PI, and Robin Saha.
- NASA grant submitted with a team from SNRE, CAUP, and ERIM--not funded.
- NSF grant submitted with a team from SNRE and CAUP--not funded.
- Team-head, for Community Systems Foundation, of project with Environmental Research Institute of Michigan (ERIM) to develop a GIS to manage the infrastructure for the city of Istanbul and the country of Turkey.
- United Nations Family Planning Agency (UNFPA), Syrian Maternal and Child Health Care/Family Planning, five year project including GIS and training components, through Community Systems Foundation; completed 1997.
- World Bank, Punjab Middle Schooling Project, including GIS and training components, through Community Systems Foundation; completed 1997.

- University of Michigan Transportation Research Institute.
- Studies in Urban Security Group, College of Architecture and Urban Planning, University of Michigan; Detroit Water and Sewerage Department Pollution and Detection Abatement.
- Nystuen, P.I. "Terrain effects on bus durability" funded through UMTA, via University of Michigan Transportation Research Institute, December, 1985. Technical Report, 1985.
- Nystuen, P.I., development of a graph theoretic description of the Detroit water supply network; part of a contract to develop a water contingency plan, funded through Architecture and Planning Research Laboratories, University of Michigan, June, 1985.
- Nystuen, P.I. "Climatic effects on bus durability," funded through Urban Mass Transportation Administration, via University of Michigan Transportation Research Institute, December, 1984.

## **PROFESSIONAL SERVICE**

- CRC Press: invited to create a series for Environmental segment
- *Geographical Analysis*: Editorial Board member.
- Referee, *Geographical Analysis: an International Journal of Theoretical Geography*, 1988-present, intermittently.
- Library poster of permanent display UM Shapiro Science Library:
  - Graph Theory and Geography book
  - Spatial Synthesis Book
  - 3D Atlas of Ann Arbor
  - Solstice cover with article co-authored with Michael Batty.
- Technology Committee Chair, American Contract Bridge League
- Member, dissertation committee of Lucy Y. Kim, SNRE, Paul Mohai, Chair.
- Member, dissertation committee of Kerry Joy Ard, SNRE, Paul Mohai, Chair.
- Member, master's committee of Emily Chi, SNRE, Paul Mohai, Chair
- Member, master's committee of Jen Horton, SNRE, Paul Mohai, Chair
- National Science Foundation: invited to serve on a panel.
- *Geographical Analysis*: invited to create a special issue
- Referee, *Canadian Geographer*.
- December 2008. Grant proposals submitted through CSF to Google Earth.
- December 2008. Contest entrant: Google Earth Contest.
- Advisor for intern, Mike Carlin, School of Education, Fall 2006.
- Co-Organizer of Festschrift for John D. Nystuen, 1999.
- Ph.D. (and similar) Committee service:
  - Member, doctoral committee of Ruben De la Sierra. School of Natural Resources and Environment, University of Michigan Ph.D. granted 1998.
  - Member, doctoral committee of Rhonda Ryznar. College of Architecture and Urban Planning, University of Michigan, Ph.D. granted 1998.
  - Member, Master's Practicum Committee (Co-chair), School of Natural Resources and Environment, University of Michigan, Astrid Hillers, M.A. granted 1998. (Astrid was also a Ph.D. student in the College of Engineering.)

- Directed Rosalyn Scaff, in custom course for credit to capture her experience in working for the City of Ann Arbor, Planning Department, Fall 1998. Resulted in an award for this work.
  - Member, doctoral committee of Robin Saha. School of Natural Resources and Environment, University of Michigan. Ph.D. granted, 2001.
  - Member, doctoral committee of Andrea Frank. College of Architecture and Urban Planning. University of Michigan. Ph.D. granted, 2000.
  - Member, Area Exam committee of Hui-Chun Huang, College of Architecture and Urban Planning. University of Michigan.
  - Member, Area Exam committee of Moira Zellner, 2001.
  - Member, Master's Practicum, committee of Dean Leslie Hay, David Pollock, Karl Koto, School of Natural Resources and Environment.
  - Member, Doctoral committee of Seung-Hoon Han, Architecture, College of Architecture and Urban Planning, University of Michigan, 2002--2003
  - Member, Doctoral committee of Lucy Y. Kim, School of Natural Resources and Environment, University of Michigan, 2003--present.
- Creator and director of a colloquium that serves as a research-level forum for the interchange of ideas in mathematics and geography. Its purpose is to generate publications suited for refereed journals and book series. Journal articles have appeared in publications devoted primarily to the following disciplines: geography, biology and medicine, psychology, and civil engineering. Minor pieces have appeared, in addition, in publications devoted primarily to: mathematics, and history. 1982-present. I founded IMAge from this Colloquium in 1983, and organized it as a business in 1985.
  - Invited member, Search Committee for a Curator for the [Library of the American Geographical Society](#). This collection, housed at the University of Wisconsin at Milwaukee is the largest collection of geographical materials in the western hemisphere. 1993.
  - Referee, *International Journal of Geographic Information Systems*. 1993.
  - Grader (and "re-grader") of top 100, *Michigan Mathematics Prize Competition of the Mathematical Association of America*, 1991-92; 1992-93.
  - Collaborative effort with Robert F. Austin (1991-1994) to generate a donation of mapping software, composed of all major GISs, to The University of Michigan; ESRI donated one of each of their products; negotiations are underway with other vendors; the value of the gift was about \$28,000. It is housed in the Prechter Laboratory in the UM School of Education.
  - Referee, *Cartography & Geographic Information Systems*, 1990.
  - Referee, *Professional Geographer: Forum and Journal of the Association of American Geographers*, 1989, 1990.
  - Served as session Chair, Co-chair, Organizer, or Discussant for a variety of professional organizations, including the American Mathematical Society, the Association of American Geographers, and the Regional Science Association (enumerated list with dates available on request).
  - Referee, publications of Institute of Mathematical Geography. 1986 to present.
  - Institute of Mathematical Geography, projects involving work of others:

Monograph Series (there are currently 23 published, 1985-present)

- **#4:** Robert F. Austin, *A Historical Gazetteer of Southeast Asia*, Library of Congress Card Number, 86-229956, 1986. ISBNs 1-877751-08-1; 1-877751-09-X.
- **#6:** P. Hanjoul, H. Beguin, and J.-C. Thill, *Theoretical Market Areas under Euclidean Distance*, 1988. ISBNs 1-877751-12-X; 1-877751-13-8.
- **#7:** Keith Tinkler, *Nystuen/Dacey Nodal Analysis*, 1989. Library of Congress Card Number, 023472993. ISBNs 1-877751-14-6; 1-877751-15-4.
- **#8:** James W. Fonseca, *Urban Rank-Size Hierarchy: A Mathematical Interpretation*, 1989. ISBNs 1-877751-16-2; 1-877751-17-0.
- **#10:** Daniel A. Griffith, *Simulating  $K=3$  Christaller Central Place Structures: An Algorithm Using A Constant Elasticity Of Substitution Consumption Function*, 1989. ISBNs 1-877751-20-0; 1-877751-21-9.
- **#12:** Daniel A. Griffith, editor. *Spatial Statistics: Past, Present, and Future*. 1990. ISBNs 1-877751-42-1; 1-877751-43-X.
- **#18:** J. Gordon. *The Cause of Location of Roads in Maryland: A Study in Cartographic Logic*, 1995.

Textbook reprints:

- Allen K. Philbrick---*This Human World*; extensive updating involving work with author. ISBN: 1-877751-39-1
- John F. Kolars and John D. Nystuen---*Human Geography*

Classic Reprint Series: John D. Nystuen, Editor.

Michigan Interuniversity Community of Mathematical Geographers; reprints of originals, requiring retyping, and redrawing of some materials, as well as extensive reworking of original documents to produce a document close in appearance to the original (including yellow covers). Editor of original and of revived series: John D. Nystuen. ISBNs: #2 1-877751-27-8; #5 1-877751-30-8; #9 1-877751-33-2; #10 1-877751-34-0; #12 1-877751-36-7.

Discussion Papers Series (new material)

Establishment of "Discussion Papers in Mathematical Geography," Daniel A. Griffith invited to serve as Editor; Discussion Paper #1: Daniel A. Griffith, "Spatial Regression Analysis on the PC: Spatial Statistics Using MINITAB," 1989. ISBN: 1-877751-24-3.

Game Series

Game---Genus Four. With William Arlinghaus, David Barr, John Nystuen, and Helen Santiz.

Outreach

- Original designs for "Fractal SeaParQue," a proposed marina development on Lake St. Clair presented, on request, to Frank Piku, head of Piku Management Company, Roseville, MI---October, 1988 (with John D. Nystuen)
- Peer reviewer, National Science Foundation, 1984.
- Creator and organizer of, and participant in, a symposium, "Geography: The Heart of the Matter," The University of Michigan, Ann Arbor, February 14, 1983.

Other participants: George Kish (University of Michigan), Donald F. Lach (University of Chicago), John D. Nystuen (University of Michigan).

- Editorial assistance provided to Ann Larimore for "Hypsometric Curve Variance and Drainage Basin Planforms," by Everette N. Bannister (deceased), Department of Geography, University of Michigan, 1983.
- Service on university-wide committee, Health Professions Advisory Committee. Interviewer of pre-medical students, Loyola, 1981-82.
- Attempt to establish a geography department at Loyola, 1980-82, resulting in approval for a course, "Geometry and Geography," in the Department of Mathematics, 1981-83.
- Museum Exhibit designs: "The garden of solids: an outdoor display in geometry using shadows." Submitted 1981 to *The Mathematical Intelligencer* as an exhibit design for the Musee de Science et de l'Industrie, La Villette, France. "A journey in the world of algebra: Rubik's Ride." Co-author, William E. Arlinghaus. Entries remain property of the *Intelligencer*, whether or not the plans are ever used.
- Referee, *Environment and Planning, B*, 1980.

## **COMMUNITY SERVICE**

- Huron Valley Neighborhood Alliance; founder and chair, 2011.
- Co-chair, Women's and Senior trials, United States Bridge Federation, to be held in Detroit at the Detroit Marriott, Renaissance Center, June 2011.
- City of Ann Arbor, Neighborhood Watch, Block Captain.
- Continuing work with Matthew Naud, Environmental Coordinator, City of Ann Arbor. Some of the work involves SNRE students.
- Served as co-chair of North American Bridge Championship, Detroit, March 2008. This project generated an estimated 8 million for the Detroit economy.
- Continuing service to the City of Ann Arbor Police Department, especially involving computing resources of various kinds.
- Neighborhood Watch Advisory Panel, City of Ann Arbor Police Department
- Created over 500 3D models (several thousand files) in response to concerns of the Downtown Residential Task Force, City of Ann Arbor/DDA, 2004-2005. Worked particularly closely with Doug Kelbaugh and Fred Beal.
- Continuing work donated to City of Ann Arbor involving creation of 3D models of the downtown available on the world wide web (noted on front page of Ann Arbor News, April, 2004) and to Matt Naud, Environmental Coordinator, City of Ann Arbor.
- July, 2003: work on tornado siren location noted in *Ann Arbor News*.
- Chair, Huron Chase Condominiums, Social Committee, 1995-present.
- Chair, Huron Chase Condominiums, Neighborhood Watch, 1995-present.
- Editor and author, Huron Chase Newsletter and website archive, 1995-present.
- City Official, City of Ann Arbor, 1995-2003;
  - service on City Planning Commission (televised) as member, Secretary, Vice-Chair, and Chair
  - Environmental Commission (televised)
  - Ordinance Revisions Committee

- Master Planning Committee
  - Water Committee
  - Northeast Area Master Plan Citizens Advisory Committee
- Application of lessons learned in Syria to Detroit. Creator of computer give-away to Alternatives for Girls (with Amy Good, Brenda Bryant, and Adele Akouri) with an indirect application to the curbing of gang violence, 1995-99.
- [Friends of Huron Parkway](#), founder, 1995; see website using general URL above.
- President, Bromley Homeowners Association (neighborhood of 231 homes in northeast Ann Arbor), 1995-96, 1990-91; 1991-92; 1992-93. Elected position. Feature article in the *Ann Arbor News*, in April, 1993. Editor and principal author, [Bromley Homeowners' Association Newsletter](#), 1990-93; 1995-1997. Thirty-six issues, plus extras, ranging in length from 2 to 8 pages (often 6). Created electronic archives of these newsletters, as "Bromley Online."
- Head of Neighborhood Watch, Bromley--in charge of about 20 block captains. Program run by the Ann Arbor Police Department. Effective August 1, 1994. Created [Citizens Neighborhood Watch homepage](#), attached to general URL above. 1994-1996.
- Time, artistic, and culinary effort donated to the [Michigan Bridge Association](#), 1994.
- Liason, between Ivy Club and Vassar Club of Southeastern Michigan, 1993-1994.
- Elected Board Member, Dolphins Swimming Pool, Inc. Ann Arbor, MI. 1993-96.
- Invited talk to Ann Arbor City Planning Commission, January 24, 1991.
- Member of five-person local arrangements committee for the 1991 World Junior Bridge Championships of the World Bridge Federation.
- Detailed study of a proposed Detroit-area mass transit network donated to Coleman A. Young, Mayor of the City of Detroit. With John D. Nystuen, 150 pages. May, 1988.
- Artistic services (posters) donated to Mathematics Awareness Week, Lawrence Technological University. Letter of commendation for these efforts received by W. Arlinghaus, in charge of that Week, from the Joint Policy Board, American Mathematical Society, 1988.
- Cartographic services donated to Bromley Homeowners Association, Ann Arbor, 1988. Map of "Ann Arbor: Shopping and Population Patterns" presented to Ann Arbor City Planning Commission and directly to the Mayor of Ann Arbor.
- Map of Ann Arbor township "islands" made for Gwen Nystuen, Ann Arbor City Planning Commissioner, 1987.
- Artistic and culinary services donated to the Michigan Bridge Association, 1987.
- Cartographic analysis of the impact of the I-696 extension on the pool of potential students for Lawrence Technological University and for rival institutions, donated to President Marburger of L.T.U.
- With Beverly Riordan, M.S., Master Teacher of High School Science, Ypsilanti, Michigan. *IMaGe Interactive Atlases*. Classroom-tested at Ypsilanti High School, 1987. This work led to "Sharma and the Atlas," television show produced for Ann Arbor Community Access Television. Producer, Sandra Arlinghaus; Educational Consultant, Beverly Riordan. Fourteen short episodes produced to promote Geography Awareness.

- Complete set of IMaGe productions donated to Senator (D-NJ) Bill Bradley: 1986-1989; selected IMaGe publications donated to the New York State prison system; selected IMaGe publications donated to the Library of Congress (at their request) for their displays at the International Geographical Union.
- Work with sculptor David Barr on a continuing basis on international outdoor art projects, 1981-present.

## **TEACHING NOTES**

- Extensive experience in course development in SNRE and TCAUP, University of Michigan.
- Consistently high teaching evaluations at various universities (samples available on request).
- Named a "best teacher" at Loyola's downtown campus of 5000 students. I was the only full-time, regular member (in the "professorial" ranks) of the Mathematics Department, on any campus, so-named.
- Featured in newspaper articles, in Ohio, for innovative teaching.
- Experience teaching geography and mapping at undergraduate and graduate levels. Experience in both small and large lecture sections. Primary responsibility for all phases of course development, including teaching assistants. Have taught: Urban Geography, Spatial Analysis (at various levels), GIS, Virtual Reality, Population Environment Dynamics, General Geography, Economic Geography, Seminar, Location Theory.
- Experience teaching mathematics at all undergraduate levels, from remedial to advanced courses for majors, to advanced courses for engineers. Experience in both small and lecture sections. Primary responsibility for lectures, for test design, and for the supervision of three teaching assistants, per course, in large lecture sections (240 students) in mathematics.

## **FAMILY**

- Married, September 3, 1966 to William Charles Arlinghaus, Professor, Department of Mathematics and Computer Science, Lawrence Technological University, Southfield, Michigan. One son, [William Edward](#). One grandson, David Edward.
- Parents: [Donald F. Lach](#), Late Bernadotte Schmitt Professor Emeritus of History, University of Chicago; [Alma S. Lach](#), (Grand Diplome de Cordon Bleu de Paris), author.

## **PROFESSIONAL MEMBERSHIPS** (at various times)

- [American Geographical Society, Fellow](#)
- [Regional Science Association](#)
- [Association of American Geographers](#)
- [American Mathematical Society](#)
- [Mathematical Association of America](#)

- Michigan Society of Planning Officials
- Michigan Section, American Planning Association

## **PUBLISHED WORK**

### **2011 (also see “pending” section at top of CV and Mathematical Reviews, below):**

- Solstice: An Electronic Journal of Geography and Mathematics, Volume XXII, Number 2.
  - With William E. Arlinghaus. The Perimeter Project, Part 6. Connections: Scholarly Multi-tasking in a Mobile Virtual Worldl, Part 3.
  - Notes: creation of .kmz files in support of
    - Bridge Odyssey of Craig Robinson
    - Transcontinental Railway Odyssey of Richard Koenig
    - Varroa Mite Project of Diana Sammataro
    - Virtual Cemetery with William E. Arlinghaus.
    - Book Review. Notes and Comments on the Composition of Terrestrial and Celestial Maps, by J. H. Lambert. Translated and Introduced by Waldo R. Tobler. New edition, ESRI Press, 2011.
- Letter to the Editor, Bulletin of the American Contract Bridge League, November 2011.
- “Bridge to a Better World,” ACBL Western Conference, Newsletter. September, 2011.
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XXII, Number 1.
  - Institute of Mathematical Geography: Quick Response Code (QR Code) Archive.
  - Ann Arbor, Downtown Historical Marker Survey.
  - With William E. Arlinghaus. Connections: Scholarly Multi-Tasking in a Mobile Virtual World, Part 2.
- “Technology Matters,” Bulletin of the American Contract Bridge League, March, 2011.

### **2010 (also see Mathematical Reviews, below):**

- Book Chapter, accepted in 2006 and published in 2010: Research Methods in Geography: A First Course. John Paul Jones III, and Basil Gomez, are editors of Research Methods in Geography: A First Course. Blackwell.
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XXI, Number 2:
  - With Michael Batty. Patterns, Maps, and Fractals: The Case of United Kingdom Historical Data Sets.
  - With Daniel A. Griffith. Mapping It Out? A Contemporary View of Burgess’ s Concentric Rign Model of Urban Growth.
  - With Diana Sammataro (principal author). The Quest to Save Honey: Tracking Bee Pests Using Mobile Technology.

- With William E. Arlinghaus. The Perimeter Project, Part 4-- Connections: Scholarly Multi-tasking in a Mobile Virtual World.
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XXI, Number 1:
  - With Joseph Kerski. MatheMaPics.
  - With William E. Arlinghaus. The Perimeter Project, Part 3: Fragile Lands Protection Using Cemetery Zoning.
  - With input from Michael Batty. Zipf' s Hyperboloid□Revisited: Compression and Navigation□Canonical Form.
  - Fractals Take A Non-Euclidean Central Place

**2009 (also see Mathematical Reviews, below):**

- BOOK: Spatial Synthesis, Volume II, Book 4. Arlinghaus, Sandra L. with input from Nystuen, John D. and Sammataro, Diana. Spatial Synthesis, Volume II, Book 4. Ann Arbor: Institute of Mathematical Geography, 2009. eBook housed on <http://www.imagenet.org/> Persistent url: <http://hdl.handle.net/2027.42/61932>
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XX.
  - Arlinghaus, Sandra L. and Sammataro, Diana. "Bee Ranges and Almond Orchard Locations: Contemporary Visualization." Solstice: An Electronic Journal of Geography and Mathematics. Institute of Mathematical Geography. Volume XX, Number 1. <http://www.imagenet.org/>
  - Arlinghaus, Sandra L. and Arlinghaus, William E. "The Perimeter Project: Fragile Lands Protection Using Cemetery Zoning." Solstice: An Electronic Journal of Geography and Mathematics. Institute of Mathematical Geography. Volume XX, Number 1. <http://www.imagenet.org/>
  - Arlinghaus, Sandra Lach. 2009. "The Platonic Solids: Earth-sculpture Anchored at Easter Island (Barr's Condition)" Solstice: An Electronic Journal of Geography and Mathematics. Institute of Mathematical Geography. Volume XX, Number 1. <http://www.imagenet.org/>
  - Arlinghaus, Sandra L. and Arlinghaus, William E. "The Perimeter Project, Part 2: Fragile Lands Protection Using Cemetery Zoning." Solstice: An Electronic Journal of Geography and Mathematics. Volume XX, Number 2. 2009. Ann Arbor: Institute of Mathematical Geography.
  - Arlinghaus, Sandra L. "Essays on Mathematical Geography: Contemporary Visualizations." Solstice: An Electronic Journal of Geography and Mathematics. Volume XX, Number 2. 2009. Ann Arbor: Institute of Mathematical Geography.
  - Arlinghaus, Sandra L. and Austin, Robert F. "Southeast Asia: Historical Place Names Visualized in Google Earth." Solstice: An Electronic Journal of Geography and Mathematics. Volume XX, Number 2. 2009. Ann Arbor: Institute of Mathematical Geography.
  - Arlinghaus, Sandra Lach. 2009. "Down the Mail Tubes: Yesterday, Today, and...Tomorrow?" Solstice: An Electronic Journal of Geography and Mathematics. Institute of Mathematical Geography. Volume XX, Number 1. <http://www.imagenet.org/>

**2008 (also see Mathematical Reviews, below):**

- Solstice: An Electronic Journal of Geography and Mathematics, Volume XIX, Number 2, December, 2008.
  - Arlinghaus, S. L. and Zander, Richard H. Electronic Journals: Then and Now...A Fifteen Year Retrospective
  - Arlinghaus, S. L. and Batty, Michael. Charting the Past: Population-Environment Dynamics.
  - Arlinghaus, S. L. Project Archimedes: Google Earth Experiments in Innovative Scientific Communication
  - [Spatial Synthesis: Volume II, Book 3. Population-Environment Dynamics: The Power of the Network Link.](#) GoogleBook version. December 1, 2008
  - [Spatial Synthesis: Volume II, Book 2: Making It Clear: The Importance of Transparency,](#) GoogleBook version. December 1, 2008
  - [Spatial Synthesis: Volume II, Book 2. Making It Clear: The Importance of Transparency, October 31, 2008](#)
  - Spatial Synthesis, Volume II, Book 1. [Scientific, Planning, Humanitarian, and Teaching Applications, From DevInfo to Google Earth.](#) September 2008.
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XIX, Number 1, June, 2008.
  - Detroit North American Bridge Championship: the Google Earth Display
  - Another Tale of Two Cities: Neighborhood Watch from Ann Arbor to Baghdad.
  - Deep Blue: IMaGe Author Applets

**2007 (also see Mathematical Reviews, below):**

- [3D Atlas of Ann Arbor, 3rd Edition](#), Sandra Lach Arlinghaus with input from others noted throughout. June 2007.
- Solstice: An Electronic Journal of Geography and Mathematics, Volume XVIII, No. 2, December 2007.
  - Geometry/Geography—Visual Unity. Solstice: An Electronic Journal of Geography and Mathematics, Volume XVIII, No. 2. June, 2007. Article in refereed journal. <http://www.imagenet.org/>
  - The Animated Pascal. Solstice: An Electronic Journal of Geography and Mathematics, Volume XVIII, No. 2. June, 2007. Article in refereed journal. <http://www.imagenet.org/>
  - Desargues's Two-Triangle Theorem. Solstice: An Electronic Journal of Geography and Mathematics, Volume XVIII, No. 2. June, 2007. Article in refereed journal. <http://www.imagenet.org/>

**2006 (also see Mathematical Reviews, below, as well as entries from earlier in 2006 in the SNRE database section following).**

- 2006 *3D Atlas of Ann Arbor, 2nd Edition*. Online virtual reality atlas of Ann Arbor using Google Earth.

- Google SketchUp 3D Warehouse Submission of files to the 3D Warehouse; also included by some third party in Google Maps and perhaps to be included in the “Google Picks” section of the home page of the 3D Warehouse under “Cities in Development.” Files received high ratings in the online rating system.
- *Solstice: An Electronic Journal of Geography and Mathematics* “Announcement: 3D Atlas of Ann Arbor, 2nd Edition”
- *Solstice: An Electronic Journal of Geography and Mathematics* “Banda Aceh: A View on the Globe.”
- *Solstice: An Electronic Journal of Geography and Mathematics* “Visualizing a Map of Walter Christaller, Poland 1941, Part I: Benchmarking the map.”
- *Solstice: An Electronic Journal of Geography and Mathematics* “Visualizing a Map of Walter Christaller, Poland 1941, Part II: Interpolation of the Benchmarked Map”
- *Solstice: An Electronic Journal of Geography and Mathematics* Arlinghaus, S. L. and Batty, M. “Visualizing Rank and Size of Cities and Towns, Part I: England, Scotland, and Wales, 1901-2001.”
- *Solstice: An Electronic Journal of Geography and Mathematics* Arlinghaus, S. L. and Batty, M. “Visualizing Rank and Size of Cities and Towns, Part II: Greater London, 1901-2001.”
- *Solstice: An Electronic Journal of Geography and Mathematics* “Introduction to Special Issue” (on Internet Geometry and Geography)
- Review of submitted book manuscript proposal Invitation from John Wiley and Sons, NY, Mathematics Division to review a manuscript proposal submitted to them. Review completed Dec. 2006
- Review of submitted book manuscript proposal Invitation from John Wiley and Sons, NY, Mathematics Division to review a manuscript proposal submitted to them. Review completed Nov. 2006

**Based on materials from the SNRE intranet. SNRE database, 1984-2006**  
**(also see Mathematical Reviews, below)**

- Arlinghaus 2006 *Solstice: An Electronic Journal of Geography and Mathematics* "Arlinghaus, Sandra L. and Arlinghaus, William C. Maps and Decisions: Part II: Ambiguity; Part III--Redistricting; Part IV--Club Data. Volume XVII, Number 1, June 2006. <http://www.imagenet.org/>"
- Arlinghaus 2006 "3D Atlas of Ann Arbor, Volume I." "Arlinghaus, Sandra Lach; Editor and single principal co-author with numerous secondary co-authors noted throughout. June, 2006: Institute of Mathematical Geography. <http://www.imagenet.org/>"
- Arlinghaus 2006 *Solstice: An Electronic Journal of Geography and Mathematics* "Arlinghaus, S. Book review of Wildberger, Norman, Divine Proportions: Rational Trigonometry to Universal Geometry. Wild Egg Press, Australia."

- Arlinghaus 2006 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra Lach. 3D Atlas of Ann Arbor: The Google Earth Approach Part I; Part II. Volume XVII, Number 1, June." J
- Arlinghaus 2006 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. and Batty, Michael. ""Zipf's Hyperboloid?"" Solstice: An Electronic Journal of Geography and Mathematics, Volume XVII, Number 1, June 2006. <http://www.imagenet.org/>" J
- Arlinghaus 2006 Archimedes in Ann Arbor? Report on 3D Atlas of Ann Arbor to Board of League of Women Voters. R
- Arlinghaus 2006 GEOMAT "Larimore, Ann E.; Arlinghaus, Sandra L.; and Haug, Robert. GEOMAT: presentation and report on trial course before Association of American Geographers, March 2006." R
- Arlinghaus 2006 Archimedes in Ann Arbor? "Interview with Tracy Davis, Ann Arbor News, concerning landuse in floodplains and 3D models." R
- Arlinghaus 2006 Archimedes in Ann Arbor? "Interview with Vivienne Armentrout, Ann Arbor Observer, concerning landuse in floodplains and 3D models." R
- Arlinghaus 2006 Book proposal review. "Arlinghaus, Sandra L. Invitation to submit written review of selected material for possible publication--John Wiley & Sons." R
- Arlinghaus 2006 Unleashing the Power of GIS/GPS "Arlinghaus, Sandra L. (Program Chair), John Corbett, Joseph J. Kerski, Teri Landrum, and Carol Miller. Unleashing the Power of GIS/GPS. Workshop co-sponsored by Taylor and Francis and AAG, March 6 and 7, Palmer House, Chicago, IL." O
- Arlinghaus 2005 Spatial Synthesis "Arlinghaus, Sandra L. and Arlinghaus, William C. Spatial Synthesis, Volume I, Book 1. E-Book. Institute of Mathematical Geography. 200 pages depending on screen resolution. <http://www.imagenet.org/> A component of this book was a semi-finalist, 2003, in the Pirelli INTERNETional Award Competition" B
- Arlinghaus 2005 "The Engineering Handbook, Second Edition" "Richard C. Dorf, Editor-in-Chief. CRC Press. Chapter 165, Photogrammetry and Topographic Mapping. 1st Edition author: Jim Bethel; Second Edition co-authors: Sandra L. Arlinghaus and Robert F. Austin. Pages 165-1 to 165-15." C
- Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. and Arlinghaus, William C. Beyond the Shadow. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, [http://www.imagenet.org.](http://www.imagenet.org/)" J
- Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. News: Update on the 3D Atlas of Ann Arbor; Archimedes in Ann Arbor. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, [http://www.imagenet.org.](http://www.imagenet.org/)" J
- Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Spatial Synthesis: The Evidence of Cartographic Example: Hierarchy and Centrality. Solstice: An Electronic Journal

- of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, <http://www.imagenet.org>." J
- Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. with input from Klaus-Peter Beier, Matthew Naud, John D. Nystuen, Taejung Kwon, Adrien Lazzaro, Paul Oppenheim, Aaron Rosenbaum, Nikolai Nolan, Rasika Ramesh, Itzhak Shani. Kioskland: A Strategy for Linking Hierarchical Levels of Virtual Reality Maps. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, <http://www.imagenet.org>." J
  - Arlinghaus 2005
  - Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Ann Evans Larimore with Sandra Lach Arlinghaus and Roberty Haug, Research Announcement: A Methodology for Historical Geography: Internet Implementation Solstice: An Electronic Journal of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, <http://www.imagenet.org>." O
  - Arlinghaus 2005 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Research Announcement: Spatial Synthesis: Investigations in Progress. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XVI, Institute of Mathematical Geography, <http://www.imagenet.org>." O
  - Arlinghaus 2004 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. and Arlinghaus, William C. Spatial synthesis sampler. geometric visualization of hexagonal hierarchies: animation and virtual reality. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XV, Institute of Mathematical Geography, <http://www.imagenet.org>." J
  - Arlinghaus 2004 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L., Beal, Fred J., and Kelbaugh, Douglas S. The View from the Top: Visualizing Downtown Ann Arbor in Three Dimensions. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XV, Institute of Mathematical Geography, <http://www.imagenet.org>" J
  - Arlinghaus 2004 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Spatial Synthesis: 3D Atlas of Ann Arbor Solstice: An Electronic Journal of Geography and Mathematics, Vol. XV, Institute of Mathematical Geography, <http://www.imagenet.org>." J
  - Arlinghaus 2004 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Goode's 80th! Vol. XV, Institute of Mathematical Geography, <http://www.imagenet.org>." J
  - Arlinghaus 2004
  - Arlinghaus 2004 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. and Blake, Braxton. Research Announcement: Two Rivers Ridge: Capturing Art." O
  - Arlinghaus 2003 Solstice: An Electronic Journal of Geography and Mathematics "Sandra Arlinghaus, Michael Batty, and John Nystuen. Animated Time Lines: Coordination of Spatial and Temporal Information, Solstice: An

- Electronic Journal of Geography and Mathematics, Volume XIV, Institute of Mathematical Geography, <http://www.imagenet.org/>" J
- Arlinghaus 2003 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra Lach. Ann Arbor, Michigan: Virtual Downtown Experiments. Solstice: An Electronic Journal of Geography and Mathematics. Volume XIV. Institute of Mathematical Geography, <http://www.imagenet.org/>" J
  - Arlinghaus 2003 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra Lach. Tornado Siren Location: Ann Arbor, Michigan. Solstice: An Electronic Journal of Geography and Mathematics. Volume XIV. Institute of Mathematical Geography, <http://www.imagenet.org/>" J
  - Arlinghaus 2003 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L., Haug, Robert, and Larimore, Ann. Lewis and Clark, 200 Years: A Visual Tribute to an Exploration. The Gates of the Rocky Mountains. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XIV, Institute of Mathematical Geography, <http://www.imagenet.org/>" J
  - Arlinghaus 2003 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Ann Arbor, Michigan: Virtual Downtown Experiments, Part II. The Gates of the Rocky Mountains. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XIV, Institute of Mathematical Geography, <http://www.imagenet.org/>" J
  - Arlinghaus 2002 Graph Theory and Geography: An Interactive View E-Book "Arlinghaus, Sandra L., Arlinghaus, William C., and Harary, Frank. Graph Theory and Geography: An Interactive View E-Book. Wiley-Interscience Series in Discrete Mathematics and Optimization, John Wiley and Sons (New York), April 2002. 400 pages depending on screen resolution. <http://www.wiley.com/> This book was a finalist, 2002, in the international Pirelli INTERNETional Award competition, <http://www.pirelliaward.com/> (shows current information only)" B
  - Arlinghaus 2002 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. and Arlinghaus, William C. Spatial Synthesis: A Research Program, Solstice, An Electronic Journal of Geography and Mathematics, Vol. XIII, Institute of Mathematical Geography, <http://www.imagenet.org/>" J
  - Arlinghaus 2002
  - Arlinghaus 2001 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Base maps, buffers, and bisectors. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XII. Institute of Mathematical Geography. <http://www.imagenet.org/>" J
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- Arlinghaus 2001 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. The lights are on, all over the world. Solstice: An Electronic Journal of Geography and Mathematics, Vol. XII. Institute of Mathematical Geography. <http://www.imagenet.org>" J
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- Arlinghaus 1998 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L., Drake, William D., Nystuen, John D. with input from Audra Laug, Kris S. Oswalt, Diana Sammataro. Animaps. Solstice: An Electronic Journal of Geography and Mathematics, Vol. IX. Institute of Mathematical Geography. <http://www.imagenet.org>" J
- Arlinghaus 1998 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Animaps--II. Solstice: An Electronic Journal of Geography and Mathematics, Vol. IX. Institute of Mathematical Geography. <http://www.imagenet.org>" J

- Arlinghaus 1998 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Animated Four Color Theorem: Sample Map. Solstice: An Electronic Journal of Geography and Mathematics, Vol. IX. Institute of Mathematical Geography. <http://www.imagenet.org>" J
- Arlinghaus 1998 "Population-Environment Dynamics: Volume VII, Transitions and Sustainability" "William D. Drake and Sandra L. Arlinghaus, Editors and authors of preliminary material; main chapters by students in NRE545. Population-Environment Dynamics. Volume VII, Transitions and Sustainability." "R, E, C"
- Arlinghaus 1997 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L., Arlinghaus, William C. A graph-theoretic view of the join-count statistic. Solstice: An Electronic Journal of Geography and Mathematics, Vol. VIII. Institute of Mathematical Geography. <http://www.imagenet.org>" J
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- Arlinghaus 1997 "Population-Environment Dynamics: Volume VI, Issues and Policy" "William D. Drake and Sandra L. Arlinghaus, Editors and authors of preliminary material; main chapters by students in NRE545. Population-Environment Dynamics. Volume VI, Issues and Policy." E
- Arlinghaus 1996 Geographical Review "Arlinghaus, Sandra L. A path through recent GIS literature: Record Note. The Geographical Review, American Geographical Society of New York, January 1996, Volume 86, No. 1." J
- Arlinghaus 1996 Solstice: An Electronic Journal of Geography and Mathematics "Arlinghaus, Sandra L. Elements of spatial planning: Theory, Part II. Solstice: An Electronic Journal of Geography and Mathematics, Vol. VII. Institute of Mathematical Geography. <http://www.imagenet.org>" J
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- Arlinghaus 1996 Geographical Review "Arlinghaus, Sandra L. Reviewer of de Lepper, Marion J. C., Scholten, Henk J., and Stern, Richard M. The Added Value of Geographical Information Systems in Public and Environmental Health. Dordrecht, Kluwer Academic Publishers, 1995. Published on behalf of the World Health Organization Regional Office for Europe. Review in Geographical Review, American Geographical Society of New York, Vol. 86, pp. 302-303, 1996." O

- Arlinghaus 1996 Professional Geographer "Arlinghaus, Sandra L. Reviewer of Osserman, Robert, Poetry of the Universe: a Mathematical Exploration of the Cosmos. Anchor Books, NY, 1995. Professional Geographer, 48: 121-122, February, 1996. Publication of the Association of American Geographers." O
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