
Curriculum Vitae

(Short Version)

THOMAS W. O'DONNELL, Ph.D.

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1 Education

- Ph.D., Experimental Nuclear Physics, University of Michigan. 2000
 - Thesis: *A Superconducting-Solenoid Isotope Spectrometer for Production of Neutron-Rich Isotopes (^{136}Xe on C at 30MeV/u)* url: <http://www.umich.edu/~twod/thesis>
 - Award: Terwilliger Distinguished Dissertation Prize, by Faculty of Physics Department
- M.S., Physics, University of Michigan. 1991
- B.S., Physics, Honors, University of Michigan. 1988

2 Academic Appointments

2.1 2007-2008

- Fulbright Scholar (Research), Venezuela, January-September, 2008
U.S. Department of State, Bureau of Educational and Cultural Affairs
 - Project: *A Comparative Study of the Political Economy of Oil in the Internal & External Policies of Venezuela and Algeria*
 - Location: Universidad Central de Venezuela, Centro de Desarrollo (UCV-CENDES), Caracas
- University of Michigan, Ann Arbor:
Lecturer, Residential College (RC). 2004-2007
 - Faculty, Science, Technology & Society Program (STS)
 - Faculty, Center for Middle East and North African Studies
 - Associate, Michigan Center for Theoretical Physics (MCTP)
- The New School University, New York City:
Visiting Faculty, Graduate Program in International Affairs. Summer 2006, 2007

2.2 Pre-2007

- University of Michigan, Ann Arbor:
 - Visiting Assistant Professor of Physics, Residential College (RC). 2001-04
- The New School For Social Research, New York City:
 - Visiting Professor, Graduate Economics. Summer 2005

- Université d'Alger, Algèria
- Visitor Lectures, Faculté de Sciences Economiques et de Gestion. April-May 2006

- Post-Doctoral, The University of Michigan, Ann Arbor
- Research Fellow, Center for the Study of Complex Systems (CSCS).
Extraordinary grant of Ford Motor Co. Research Labs
Sustainable Mobility Research Project 2002
- Post-Doctoral Fellow, Rackham Summer Interdisciplinary Institute (RSII).
Project: "Emergence in the Natural and Social Sciences, and Humanities." 2002
- Post-Doctoral Research, X-Ray synchrotron, exotic semiconductor materials.
Prof. Roy Clarke, P.I., Applied Physics Program, (50%). 2000-2001
(Collaborators: AT&T, Murray Hill, NJ; Howard University Physics Dept., Wash., DC)

2.3 Professional (Full list of consulting, etc.: Sect. 8)

- Health Physicist: Reactor Decommissioning; NRC Research Licensing. 2004-2005
- University of Michigan, Ford Nuclear Reactor & Phoenix Memorial Project

- Consulting Physicist, Texas A&M University (TAMU) Cyclotron Institute. 2000-2001

- Geo-Political & -Economic Consultant, Oil Sector. 2007

3 Publications

3.1 Physics Peer Reviewed (Full list on request: 37 papers)

- 2007 -

- 37 "Symmetry energies, pairing energies, and mass equations", J. Jänecke and T.W. O'Donnell, *Nuclear Physics A* 781 (2007) 317-341.
- 36 "Damping mechanisms of high-lying single-particle states in ^{91}Nb ", H.K.T. van ter Molen, *et al*, *Phys. Rev. C* **75**, 014311 (2007)

- Selected Previous -

- 35 "Isospin inversion and p-n pairing in self-conjugate nuclei $A = 58$ to 98 ", J. Jänecke and T.W. O'Donnell, *Phys. Letters B* **Volume 605, Issues 1-2**, 6 January 2005, Pages 87-94.
- 34 "Symmetry energies and the curvature of the nuclear mass surface" J. Jänecke and T.W. O'Donnell, *European Physics Journal* **v25** (2005) 79-80.
- 32 "Symmetry and pairing energies of atomic nuclei." J. Jänecke, T.W. O'Donnell and V.I. Goldanskii. *Nuclear Physics A* 728 (2003) 23-51.
- 31 "Isospin inversion in $N = Z$ nuclei and deuteron-like and α -particle-like structures." J.Jänecke, T.W. O'Donnell, and V.I. Goldanskii, *Phys. Rev. C* **66**, 024327 (2002)
- 29 "Measurement of L/K Ratio in ^7Be Electron Capture." P.A. Voytas, C. Ternovan, M. Galeazzi, D. McCammon, J.J.Kolata, P. Santi, D. Peterson, V. Guimaraes, F.D. Becchetti, M.Y. Lee, T.W. O'Donnell, D.A. Roberts, S. Shaheen. *Phys. Rev. Letters* **88**, 012501 (2001).

- 23 “Experimental Apparatus for the Study of the Effects of Strong Longitudinal Magnetic Fields on the Dose Distribution of Clinical Photon and Electron Radiotherapy Beams.” D.W. Litzenberg, B.W. Fraass, D.A. McShan, J.M. Moran, T.W. O’Donnell, D.A. Roberts, R.D. Becchetti. *Phys Med Bio* **V46 no.5**, pp. **N105-N115**, 2001.
- 16 “Isotope Yields with a Solenoid-Based Fragment Mass Analysis System - Prospects for Exotic Isotope Studies in the $10 < Z < 30$ Range,” T.W. O’Donnell, F.D. Becchetti, J. Brown, J.W. Jänecke, M.Y. Lee, R.S. Raymond, D.A. Roberts, R.S. Tickle, H.C. Griffin, and R. Ronningen. *Nuclear Instruments and Methods in Physics Research A* **422** (1999) 513-517.

3.2 International Affairs & Political Economy

- “The Political Economy of Oil & U.S. Persian Gulf Policy”
ETH-Zurich ISN Network & New School-NYC GPIA Study Group: Economics of Terrorism
Chapter, Edited Volume. *in preparation*
- “Political Economy of the Globalized Oil Order: How ”Objective Conditions” Drove the OECD and OPEC from Confrontation to Collusion.” *in preparation*
- “Global Oil to 2030: A Quantitative Assessment in the Context of International Affairs.”
T.W. O’Donnell. *International Relations and Security Network (ISN)* **2 May 2007**.
(Link:<http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30696>)
- “The Political Economy of the U.S.-Iran Crisis: Oil Hegemony, Not Nukes, is the Real Issue.”
T.W. O’Donnell. *Z Magazine* **V19, no.6**, June 2006. (Link: <http://TomOD.com>)

4 Presentations, Colloquia, Session Chair, etc. 2004-2007

4.1 Conference or Session Chair

- *Chair & Discussant*
“The U.S.-Iran Nuclear Crisis”
Center for Middle East & N. African Studies (CMENAS)
University of Michigan, Ann Arbor. 9 November 2007
- *Conference Program Co-Chair*
26th North American Conference, “Energy in a World of Changing Costs and Technologies”
U.S. Association for Energy Economics (USAEE/IAEE)
Ann Arbor, MI. 24-27 September 2006.
- *Chair, Transportation Plenary Session*
“Alternative Transportation Perspectives” 26th North American Conference
U.S. Association for Energy Economics (USAEE/IAEE)
Ann Arbor, MI. 24-27 September 2006.

4.2 Political Economy, International Affairs

- “The U.S.-Iran Crisis: Headed for Disaster?”
Graduate Program in International Affairs (GPIA), Public Panel
The New School University, Milano School, New York City. 9 December 2007
- “The U.S.-Indian Nuclear Agreement in the Media”
Imagining Global Asia Project
The New School University, Milano School, New York City. 7 December 2007
- “The Political Economy of Iranian Oil”
Middle East Studies Association (MESA), Annual North American Conference
Montreal, Canada. 17 November 2007
- “The Global Political Economy of Oil & the ‘New Nationalism’”
Middle East Studies Center & Center for Latin American Studies
Ohio State University, Columbus. 13 November 2007
- “How Exactly is the Iraq War ‘All About Oil’?”
Energy Institute (MMPEI), ”Energy Day”
University of Michigan, Ann Arbor. 15 September 2007
- “The U.S.-Iran Crisis”
Student-Faculty Teach In
Green Mountain College; Poultney, Vermont. 1 May 2007.
- “U.S., Iran, Israel: What’s Ahead?”
2007 Left Forum URPE Panel
Cooper Union College, New York, NY. 10 March 2007
- “The Global Political Economy of Oil”
National Vehicle and Fuel Emissions Laboratory
U.S. Environmental Protection Agency (EPA)
Two invited talks
Ann Arbor, MI. 16 February & 16 March 2007.
- “Report on Faculty Exchange Visit to University of Algiers & Economics Faculty”
Center for Middle East and North African Studies (CMENAS)
Faculty year-end reception
The University of Michigan, Ann Arbor. 18 January 2007.
- “The Political Economy of the New Global Oil Order and U.S. Policy”
Michigan Memorial Phoenix Energy Institute (MMPEI)
Inaugural Workshop
The University of Michigan, Ann Arbor. 18 January 2007.
- *The Global Political Economy of Oil: U.S. Policy in the Persian Gulf*
Study Group on the Economics of Security: Security Policy Five Years After 9/11
Center for Security Studies (ETH Zurich)
Graduate Program in International Affairs & World Policy Institute
The New School, New York City. 17 November 2006.
- *First Workshop of the Agenda for Social Research Related to Long-Term Energy Options (AS-RELEO) Project*
Proposals Discussant Panel
Swiss Federal Institute of Technology (ETH)
Zürich, Switzerland. 5-6 October 2006.

- “MENA States in the New Globalized Oil System: Re-Privatizing Nationalized Oil Fields, and the New OPEC+OECD International Energy Forum Secretariat (IEFS) in Riyadh”
Middle East Studies Association (MESA)
2006 National Conference; Boston, MA. 18-21 November 2006.
- “The Global Political-Economy of Oil and U.S. Persian-Gulf Policy Since the OPEC Revolution”
Center for Security Studies, The Mershon Center; sponsored by Middle East Institute
Ohio State University (OSU), Columbus, OH. 17 November 2006.
- “From Monopoly-Capitalist to Global-Capitalist Power in the Oil Order: The IEFS; Iran, Iraq and Other Features” and
“The U.S.-Iran Crisis: Persian-Gulf Oil Hegemony, not Nukes, is the Issue”
Rethinking Marxism Conference
UMass, Amherst, Amherst, MA, 26-28 October 2006.
- “The Political Economy of Oil: The U.S. and the Middle East”
Summer Workshop: Middle East - U.S. Intersections
Middle East Studies
University of California at Los Angeles (UCLA), Los Angeles, Ca. 1 August 2006.
- “The U.S.-Iran Crisis: Oil Hegemony, Not Nukes at Issue”
PIER Summer Institute: Geopolitics of Oil in the Middle East
Middle East Studies
Yale University, New Haven, Ct. 12 July 2006.
- “The Iran Crisis: Fact vs. Fiction”
Public Forum: with E. Abrahamian, V. Baron & B. Nakhai.
Sponsored by: Campaign Against Military Sanctions and Intervention in Iran (CASMI)
Judson Church, Washington Square; New York City. 21 June 2006.
Aired on Pacifica Radio, New York City.
- “Oil, Nukes, Mullahs, Democracy: Political Economy of Iran Crisis”
The Brecht Forum with F. Farbod, R. Ghorashi & F. Moghadam.
451 West Street, Greenwich Villiage; New York City. 16 May 2006.
Aired on Pacifica Radio, New York City.
- “Global Oil and U.S. Policy since WW II”
Speaker, Political-Economy Seminar (Econ801, Prof. A. Shaikh).
The New School for Social Reserach, New York City. 29 March 2006.
- “European Union Energy & Transport: The Revolution Postponed?”
Colloquium Institute for the Study of Europe, and
Center for Energy and Maritime Transportation.
Columbia University, New York City. 28 March 2006.
- “The new globalized oil system: Iran, Iraq & reproducing U.S. hegemony”
Public Lecture sponsored by: Center for Middle East and North African Studies,
International Institute
University of Michigan, Ann Arbor. 15 March 2006.
- “Political Economy of the U.S.-Iran Crisis”
2006 Left Forum with F. Moghadam & E. Abrahamian.
Cooper Union University, New York City. 11 March 2006.
Aired on Pacifica Radio, New York City.
Video DVD produced by Z Publications.

- “The New Globalized Oil Order: Iraq, Iran, and US Strategy for the Middle East”
Public Lecture Event sponsored by: Department of Anthropology, Department of Near Eastern and Asian Studies, Committee for Peace and Justice in the Middle East, Center for Peace and Conflict Studies, and American-Arab Anti Discrimination Committee.
Wayne State University, Detroit, MI. 1 February 2006.
- “Algeria 1945 to Present - A Brief View”
New World Agricultural and Environmental Group.
The University of Michigan, Ann Arbor, Mi. 8 December 2005.
- “The Global Oil System and the Iraq War”
Our Common Futures Lecture Series (PitE273)
School of Natural Resources and Environment
The University of Michigan, Ann Arbor, MI. 14 November 2005.
- “The Globalized Energy Order”
Engineers Without Borders Lecture Series
BlueLab: Better Living Using Engineering. School of Engineering
The University of Michigan, Ann Arbor, MI. 31 October 2005.
- “A Convergence of Domestic European-Union and U.S. Energy- and Transportation-Infrastructure Trajectories? – A Case Study in the New Energy Globalization.”
Faculty/Ph.D. Seminar, School of Natural Resources and Environment (SNRE)
The University of Michigan, Ann Arbor, MI. September 30, 2005.
- “The Global Oil System: Resources, Technology and the New U.S. Policy,”
CNS Anniversary Conference, Celebrating work of James O’Connor
York University, Toronto, 22-24 July 2005.
- “Global Oil and U.S.-E.U. Contention,”
2005 Left Forum Panel with Michael Klare and Michael Tanzer,
City College of New York Graduate Center, New York. 15-16 April 2005.
- “Oil-Market Control Institutions - The US-IEA Plus OPEC Collaboration in the New Permanent Secretariat of the International Energy Forum (IEF) in Riyadh,”
Faculty-Graduate Seminar, Department of Political Science
York University, Toronto. 4 March 2005.
- “The Geography and Politics of a Resource: Oil in the Middle East,”
Introduction to Arab Culture and Language. AAPTIS 331 course (Arabic, Armenian, Persian, Turkish, and Islamic Studies),
The University of Michigan, Ann Arbor. 3 February 2005.
- “The Global Oil System: Resources, Technology and the New US Strategy,”
School of Natural Resources and Environment (SNRE),
Faculty/PhD Friday Seminar.
The University of Michigan, Ann Arbor. December 10, 2004.
- “El Sistema Global del Petróleo: Recursos, Tecnología y la Nueva Fase de la Hegemonía estadounidense,”
Conferencia de la Facultad Biológica y Ciencia,
Universidad del Valle, Cali, Columbia. 27 September 2004.
In Spanish, via video-conference, from University of Michigan, Duderstadt Media Union.

- "The IEA Cartel, Oil-Price Swing States, and U.S. Oil Hegemony: How "Cheap Oil" Remakes the World in America's Image,"
Global Studies Association Third Annual Conference; Globalization, Empire and Resistance,
Brandeis University. Boston, MA, 23-25 April 2004.
- "Are the US and EU on Different Trajectories in Their Energy and Transportation Sectors?"
New World Agricultural and Environmental Group,
The University of Michigan, Ann Arbor. 13 January 2004.
- "Globalism and the Information Revolution: Emergence of new class forces in the US as seen in the Pro- and Anti-Iraq-War Camps,"
Rethinking Marxism Conference,
U. Mass, Amherst. 22 November, 2003.
- "The US-EU Infrastructure Divide: A Cross-Atlantic Clash of Transportation, Energy & Environmental Cultures,"
Society for Social Studies of Science (4S) 2003 Meeting,
Atlanta, GA. October, 2003.

4.3 Misc: Philosophy, Physics, Information Theory, Sociology, History

- "Quantum Computers and Reality: Deutsch's Anti-Positivist Campaign for Explanation, Apart From His Many-Worlds Interpretation,"
Forum on the History of Physics,
American Physical Society (APS) Conference, Joint Meeting of Nuclear and Astrophysics Sections,
Albuquerque, NM. April 2002.
- "Symmetry & Pairing Energies of Atomic Nuclei, & Quartet-Structures in $N \approx Z$ Nuclei,"
American Physical Society Conference, Joint Meeting of Nuclear and Astrophysics Sections,
Albuquerque, NM. April 2002.
- "Phase Transition in Computing Cost of Over-Constrained NP-Complete 3-SAT Problems,"
American Physical Society, March Meeting,
Indianapolis, IN, March 2002.
- "Marx, Computers and the End of Industrial Unionism,"
The American Sociological Association (ASA) National Convention.
Washington, D.C. August, 2000.

5 Recent Teaching: 2004-2007

- "Global Energy in Crisis: The Global Oil System, the US, EU and Middle East" ;
The New School, New York City. Graduate Program in International Affairs (GPIA)
Summer 2007
<http://www.umich.edu/~twod/oil-ns>
- "Oil, Nukes, Democracy: U.S.-Iran Relations"
U. of Michigan: Middle East & N. African Studies; History; AAPTIS; RC, Fall 2006.
<http://www.umich.edu/~twod/courses>
- "Energy and the Environment
U. of Michigan: RCNaturalSci 264,: Program in the Environment 264,
& Urban Planning 264, University Michigan. Fall 2004, 05, 06

- <http://www.umich.edu/~twod/energy>
- “Energy in Crisis”
New School University: Graduate Program in International Affairs, Summer 2006
<http://www.umich.edu/~twod/ns-oil>
 - “The Global Oil System and the Middle East”
1. New School for Social Research: Graduate Economics Dept., Summer 2006
2. U. of Michigan: Middle East & N. African Studies; History; RC, Geology, Fall 2005.
<http://www.umich.edu/~twod/oil>
 - “Steam Engines and Computers: From Industrial Proletarians to Information Workers.”
Residential College (RC), The U. of Michigan. Four times: [2001-2006]
Senior Seminar, RC Social Science 460, History 498, Sociology 495
<http://www.umich.edu/~twod/steam>
 - “The Intellectual History of Information, 1680–2001: A Story of Mathematics, Logic, Philosophy, Physics and Computer Science”
Residential College (RC), U. Michigan, First-Year Seminar, Fall 2001
http://www.umich.edu/~twod/sof/rc-fys_index.html
 - “Social Dimensions of Science, Technology and Medicine.” Lectures on history of technology & class formation; mid-feudalism to Information Revolution (1000-2000 AD).
Residential College (RC), U. Michigan. RC SocialSci 260; Science, Technology & Society (STS).
Co-taught. Winter 2001, *scheduled Winter 2005*.
http://www.umich.edu/~twod/sof/sts_275.html
 - “Global Political-Economy of Oil and the Iraq War”
Residential College mini research course, U. Michigan.
Special Topics RC Inter-Divisional 350, & UROP 260. Winter 2004
<http://www.umich.edu/~twod/oil2004>
 - “Iraq: One Year Later” Residential College mini research course, U. Michigan.
Special Topics RC Inter-Divisional 350. Winter 2004
<http://www.umich.edu/~twod/iraq>

6 Professional and Academic Organizations

- Middle East Studies Association (MESA)
- United States Association for Energy Economics (USAEE)
(U.S. section of International Association for Energy Economics, IAEE)
- American Physical Society (APS)
- Union for Radical Political Economy (URPE)

7 Languages

7.1 Human

- Spanish, rough fluency; presently re-studying
- Chinese (Mandarin), 2.5 years
- Some French (Reading)

7.2 Machine

- Interactive Data language (IDL), visualization, data reduction and simulation language, expert level.
- C, C++, Fortran, HTML, LaTeX, etc., general competence.
- Specialized data acquisition and analysis languages used at national laboratories for nuclear physics experiments. From assembly-like languages (XSYS), to Fortran-like (SARA), to GUI-driven (Exceed).

8 Professional & Consulting Projects (Environmental, Energy, Nuclear Medicine, Radiation Safety)

- 2003-05 U. Michigan Phoenix Memorial Laboratories/Ford Nuclear Reactor
 - Nuclear-reactor decommissioning project; health physics
 - NRC regulatory-compliance, human-health and training responsibility. 50% appointment.
- 1993-94, '95 Consulting Physicist ($\geq 50\%$).
 - Special projects, modeling of doses, airborne radioisotope dispersal, accident remediation.
- U. Michigan Medical School and Hospital
 - 1991-1992 Consulting Physicist, Positron Emission Tomography (PET) Cyclotron (50%).
With D. Norton, P.E., Chief Engineer, University of Michigan Medical School.
 - Gaseous ($^{11}\text{CO}_2$) Radioactivity Containment Project. Model and design ≈ 1 Mega-\$ radioactivity containment systems. Oversight of contractors and commissioning with Chief Engineer.
 - 1990-1991 Commissioning and Evaluation Group (Engineering/Physics), University of Michigan Management and Design Department.
 - Medical School, Dean's 20-Year Forecast Project. Develop thermodynamic-efficiency and useful-lifetime testing for ≈ 2 -million-ft² bio-medical research facilities. Project head: D. Norton, P.E.
 - 1990-1991 Consulting Physicist, University of Michigan Medical School Facilities and Design Office,
 - Medical School Laboratories air-quality study. Director: H. Beaumont.
 - 1989-1990 Consulting Physicist. *ibid.*
 - Evaluation of U. Michigan nuclear research reactor waste-water treatment proposals. For Director, Engineering Services: J. Janvesa, P.E.
 - 1988-1989 *ibid.*
 - Analysis of automated fire suppression and emergency ventilation system failures. Material Science Laboratories, University of Michigan.
 - 1988-1989 *ibid.*
 - Heat-load analysis, redesign of environmental systems for Ancient Papyrus Archives.
 - Design and construction-oversight of winter 'free cooling' systems in University of Michigan Graduate (Hatcher) Libraries.
 - Redesign of trace-metal-free seawater/environmental laboratory, Department of Geology
 - 1986-1987 Physics Department research Cryogenics Laboratory
 - Liquification of ^4He . Prof. K. Terwilliger, Associate Chair for Research (50%).
 - 1982-1991 Self-Employed (while student)
 - Engineering and skilled-trades services: Energy-assessments, industrial-sized steam boilers, LiBr and freon refrigeration systems, pneumatic and electric controls, computer control and monitoring systems, ventilation (HVAC), water treatment.
 - 1981-1982 Detroit Medical Center
 - Computer-controlled HVAC and emergency power-generation systems.