Curriculum Vitae: Michael Faux

Departmental Address

Department of Physics and Astronomy
SUNY College at Oneonta
Oneonta, NY 13820
USA

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webpage: http://www.oneonta.edu/faculty/fauxmg

Graduate Education

University of Pennsylvania
Ph.D. in Physics, August 1994

Graduate Thesis

"Non-Perturbative Effects and Supersymmetry Breaking
in Matrix Models and in String Theory"

Thesis Advisor: Professor Burt Ovrut

Undergraduate Education:

The Pennsylvania State University
B.S. in Electrical Engineering, May 1985

Faculty Positions

VIGRE Assistant Professor (non tenure-track), Columbia University,
Department of Mathematics and Department of Physics, July 1999 - June 2002

Visiting Assistant Professor (non tenure-track), Hobart and William Smith Colleges,
Department of Physics, July 2002 - June 2005

Assistant Professor, SUNY College at Oneonta,
Department of Physics, September 2005 - August 2009

Associate Professor (tenured), SUNY College at Oneonta,
Department of Physics, September 2009 - June 2018

Professor, SUNY College at Oneonta,
Department of Physics and Astronomy, June 2018 - Present

Administrative Positions

Director, 3-2 Engineering Program, September 2009 - August 2013

Chair, Department of Physics and Astronomy, September 2013 - present

Postdoctoral Research Fellowships

Utrecht University, Utrecht, The Netherlands, September 1994 - December 1995

Institute for Theoretical Physics at K.U. Leuven, Leuven, Belgium, January 1996 - August 1997

Institut für Physik, Humboldt University, Berlin, Germany, September 1997 - June 1999

Visiting Scientist Positions

CERN Theory Division, Ph.D. student visitor, September 1992 - October 1993

Corporate Positions:

Associate Engineer, Advanced Transistor Development, IBM Corporation,
East Fishkill, NY, June 1985 - January 1987

Teaching Experience: Graduate Physics

Anomalies in Quantum Field Theory	(Columbia University)
Geometry and Topology in Physics	(Columbia University)
String Theory I	(Columbia University)
String Theory II	(Columbia University)

Teaching Experience: Undergraduate Physics

Physics 100: General Physics†	
Physics 103: Intro Physics I (non-calculus)†	
Physics 104: Intro Physics II (non-calculus)†	
Physics 150: Intro Physics I (calculus-based)†	(Hobart and William Smith)
Physics 160: Intro Physics II (calculus-based)†	(Hobart and William Smith)
Physics 205: Modern Physics	
Physics 214: Vibrations and Waves	
Physics 240: Electronics†	(Hobart and William Smith)
Physics 313: Quantum Mechanics	
Physics 333: Electomagnetism	

Teaching Experience: Undergraduate Physics (continued)

Physics 351: Classical Mechanics (Hobart and William Smith)
Physics 361: Electromagnetism (Hobart and William Smith)
Physics 399: General Relativity

Teaching Experience: Undergraduate Astronomy

Astronomy 108: Descriptive Astronomy

Teaching Experience: Undergraduate Engineering

Engineering 335: Electronics I†
Engineering 338: Electronics II†
Engineering 399: Vacuum Tube Amplifiers†

Teaching Experience: Undergraduate Mathematics

Math 131: Calculus II† (Hobart and William Smith)
Math 150: Calculus III (Columbia University)

Teaching Experience: Undergraduate Special Topics

FSEM 138: Reverberations of Scientific Revolutions (Hobart and William Smith)
Physics 294: Revolutions in Physics
Physics 299: Project Analemma†
Physics 299: General Relativity
Physics 299: Advanced Electronics†
Physics 299: Building a Theremin†
Physics 299: Supersymmetry I
Physics 399: Supersymmetry II
Physics 386: Capstone in Physics
Physics 399: Mathematical Physics
Physics 399: Adinkramatics

Professional Associations, Academic Honors, and other distinctions

The Anacapa Society (member)

Oneonta Engineering Advisory Council (founding member)

Sigma Pi Sigma (faculty liason)

Society of Physics Students (faculty liason)

Professional Associations, Academic Honors, and other distinctions (continued)

Tau Beta Pi National Honor Society (member)

Eta Kappa Nu National Honor Society (member)

Golden Key National Honor Society (member)

Who's Who in America (biography included 2010)

Notable accomplishments

Married (21 years in 2018), two children

Thru-Hiked the entire Appalachian Trail (March-August 1987)

Visited 39 countries:

USA, Canada, Brazil, UK, Netherlands, Belgium, Luxembourg, Germany, France, Italy, Spain, Austria, Switzerland, Andorra, Vatican City, Greece, Czech Republic, Slovakia, Poland, Hungary, Russia, Algeria, Niger, Nigeria, Cameroon, Central African Republic, Democratic Republic of Congo (Zaire), Republic of Congo (Brazzaville), Tanzania, Tunisia, Egypt, Palestine, Israel, Jordan, United Arab Emirates, India, Indonesia, Malaysia, Thailand

Visited 47 US states (all but North Dakota, Alaska, and Hawaii)

Community Service

Curriculum Committee, member, SUNY College at Oneonta, 2005-2006

Library Committee, member, SUNY College at Oneonta, 2006 - 2011

Faculty advisor for the "Phriends of Physics" club, SUNY College at Oneonta 2005 - 2011

$\Sigma\Pi\Sigma$ honor society, local chapter representative, 2006 - present

Society of Physics Students, local faculty liason, 2006 - present

Television interview, WSKG Oneonta, November 2007

Undergraduate Faculty Advising, SUNY College at Oneonta, 2005 - present

Supervision of undergraduate summer research projects and independent studies

Coach, Oneonta little league, 2006, 2007, 2008, and 2009 seasons

Oneonta Science Café, April 2014, conceived, planned, and executed community science event

Radio interview on "Myth America" radio program, WIOX in Roxbury, NY, March 28, 2017

Other Service:

Peer review work for Journal of High Energy Physics

Peer review work for Nuclear Physics B

Peer review work for Physics Letters B

Peer review work for Modern Physics Letters A

External reviewer of the Physics program at UAEU, Al-Ain, United Arab Emirates, March 2015

Refereed Published Papers

• *Off-Shell supersymmetry and Filtered Clifford supermodules*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber
Algebras and Representation Theory (2018) 21: 375

• *The Conformal Hyperplet*
M. Faux,
International Journal of Modern Physics A Vol. 32 (2017) 1750079

• *Codes and Supersymmetry in One Dimension*
C. F. Doran, M. G. Faux, S. J. Gates, Jr., T. Hubsch,
K. M. Iga, G. D. Landweber and R. L. Miller,
Advances in Theoretical Mathematical Physics 15 (2011) 1909-1970

• *Dimensional Enhancement via supersymmetry*
M. G. Faux, K. M. Iga, and G. D. Landweber,
Advances in Mathematical Physics 2011 259089 (2011)

• *Spin holography via dimensional enhancement*
Michael G. Faux and Gregory D. Landweber,
Physics Letters B 681 (2009) 161-165,

• *A superfield for every dash chromotopology*
C. F. Doran, M. G. Faux, S. J. Gates, T. Hubsch, K. M. Iga and G. D. Landweber,
International Journal of Modern Physics A24 (2009) 5861

• *Effective Symmetries of the Minimal Supermultiplet of $N = 8$ Extended Worldline SUSY*
M. G. Faux, S. J. Gates, and T. Hübsch,
J. Phys. A: Math. Theor. 42 (2009) 415206

• *Frames for Supersymmetry*
C. F. Doran, M. G. Faux, S. J. Gates, T. Hubsch, K. M. Iga and G. D. Landweber,

International Journal of Modern Physics A Vol. 24 Issue No. 14 (2009) 2665-2676

• *Super-Zeeman Embedding Models on N-Supersymmetric World-Lines*
C. Doran, M. Faux, S. J. Gates, T. Hubsch, K. Iga and G. Landweber,
Journal of Physics A42 (2009) 065402

• *On the matter of $N = 2$ matter*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber,
Physics Letters B 659 (2008) 441-446

• *Adinkras and the dynamics of superspace prepotentials*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber,
Advanced Studies in Theoretical Physics, Vol. 2, no. 3 (2008) 113-164

• *A counter example to a putative classiffication of one-dimensional N-extended supermultiplets*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber,
Advanced Studies in Theoretical Physics, Vol. 2, no. 3 (2008) 99-111

• *On graph theoretic identifications of Adinkras, supersymmetry representations and superfields*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber,
International Journal of Modern Physics A22 (2007) 869-930

• *Adinkras: A graphical technology for supersymmetric representation theory*
M. Faux and S. J. Gates, Jr.
Physical Review D71 (2005) 065002

• *A BPS interpretation of shape-invariance*
M. Faux and D. Spector
Journal of Physics A37 (2004) 10397-10407

• *Duality and central charges in supersymmetric quantum mechanics*
M. Faux and D. Spector,
Physical Review D70 (2004) 085014

• *A periodic table for supersymmetric M-theory compactifications*
C. Doran and M. Faux,
Journal of Mathematical Physics 44 (2003) 2853-2873

• *Twisted sectors and Chern-Simons terms in M-theory orbifolds*
M. Faux, D. Lüst, and B. A. Ovrut,
International Journal of Modern Physics A18 (2003) 2995-3013

• *An M-theoretic perspective on heterotic K3 orbifold compactification*
M. Faux, D. Lüst, and B. A. Ovrut,
International Journal of Modern Physics A18 (2003) 3273-3314

• *Four-dimensional super Yang-Mills theory from an M-theory orbifold*
C. Doran, M. Faux, and B. A. Ovrut,
Advances in Theoretical Mathematical Physics 6 (2002) 329-355

• *Intersecting branes in M-theory and chiral matter in four dimensions*
C. Doran and M. Faux,
Journal of High Energy Physics 0208 (2002) 24

• *Local anomaly cancellation, M-theory orbifolds, and phase-transitions*
M. Faux, D. Lüst, and B. A. Ovrut,
Nuclear Physics B589 (2000) 269-291

• *Intersecting orbifold planes and local anomaly cancellation in M-theory*
M. Faux, D. Lüst, and B. A. Ovrut,
Nuclear Physics B554 (1999) 437-483

• *Vector-tensor multiplets*
P. Claus, B. de Wit, M. Faux, B. Kleijn, R. Siebelink and P. Termonia,
Fortschritte der Physik 47 (1999) 125-132

• $N = 2$ *supergravity lagrangians with vector-tensor multiplets*
P. Claus, B. de Wit, M. Faux, B. Kleijn, R. Siebelink and P. Termonia,
Nuclear Physics B512 (1998) 148-178

• *Chern-Simons couplings and inequivalent vector-tensor multiplets*
P. Claus, B. de Wit, M. Faux, and P. Termonia,
Nuclear Physics B491 (1997) 201-220

• *The vector-tensor supermultiplet with gauged central charge*
P. Claus, B. de Wit, M. Faux, B. Kleijn, R. Siebelink, and P. Termonia,
Physics Letters B373 (1996) 81-88

• *Instanton effects in matrix models and string effective lagrangians*
R. Brustein, M. Faux, and B. A. Ovrut,
Nuclear Physics B433 (1995) 67-98

• *Effective* $d = 2$ *supersymmetric lagrangians from* $d = 1$ *supermatrix models*
R. Brustein, M. Faux, and B. A. Ovrut,
Nuclear Physics B421 (1994) 293-342

arXiv papers

• *Topology types of Adinkras and the corresponding representations of N-extended supersymmetry*
C. F. Doran, M. G. Faux, S. J. Gates, T. Hubsch, K. M. Iga and G. D. Landweber, and R. L. Miller, arXiv:0806.0050

• *Adinkras for Clifford algebras, and worldline supermultiplets*
C. F. Doran, M. G. Faux, S. J. Gates, T. Hubsch, K. M. Iga and G. D. Landweber, and R. L. Miller, arXiv:0811.3410

• *Central charges and extra dimensions in supersymmetric quantum mechanics*
M. Faux, D. Kagan, and D. Spector, arXiv:hep-th/0406152

• *Confluences of anomaly freedom requirements in M-theory*
M. Faux, arXiv:hep-th/9803252

• *New consistent limits to M-theory*
M. Faux, arXiv:hep-th/9801204

• *Nonperturbative effects and supersymmetry breaking in matrix models and in string theory*
M. Faux, UMI-95-03756-mc (1994) Ph. D. Thesis

Contributions to Books and Proceedings

• *Relating doubly-even error-correcting codes, graphs, and irreducible representations of N-extended supersymmetry*
C. Doran, M. Faux, S. J. Gates, Jr., T. Hübsch, K. Iga, G. Landweber,
New Advances in Applied and Computational Mathematics,
editors F. Liu et al., Nova Science Pub., Inc., Hauppage, 2007

• *Phase-transitions and tensor dynamics in M-theory*
M. Faux, D. Lüst, and B. A. Ovrut,
Mirror Symmetry IV: Advanced Studies in Mathematics 28 (2002) 231-254

• *The vector-tensor multiplet and heterotic dilaton couplings*
P. Claus, B. de Wit, M. Faux, R. Kleijn, R. Siebelink, and P. Termonia,
Gauge Theories, Quantum Gravity and Applied Supersymmetry II (1996) 231-238

• *A systematic analysis of nonperturbative effects in matrix models and string effective lagrangians*
R. Brustein, M. Faux, and B. A. Ovrut,
Warsaw 1994: Physics from Plank Scale to Electroweak Scale (1994) 303-318

• *Supersymmetric field theory from supermatrix models*
R. Brustein, M. Faux, and B. A. Ovrut,

Proceedings of the 4th International Conference on Mathematical Physics, String Theory, and Quantum Gravity, Rakhov, Ukraine (1994)

• *The strength of nonperturbative effects in matrix models and string effective lagrangians*
R. Brustein, M. Faux, and B. A. Ovrut,
SUSY '94 (1994) 395-402

• *Nonperturbative interactions in two-dimensional (super)string theory*
R. Brustein, M. Faux, and B. A. Ovrut
SUSY '93 (1993)

• *Nonperturbative effective lagrangians for super-matrix models*
R. Brustein, M. Faux, and B. A. Ovrut,
Marseille 1993: EPS HEP (1993) 260-264

Conferences and Workshops Attended:

Theoretical Advanced Study Institute (TASI '92): "From Superstrings and Black Holes to the Standard Model", University of Colorado, Boulder Colorado, 1-26 June 1992

Siberian Workshop on Quantum Field Theory and Strings,
Tomsk State University, Tomsk, Siberia, Russia, August 1994 (speaker)

"Gauge Theories, Applied Supersymmetry, Quantum Gravity",
Leuven University, Leuven, Belgium, 10-14 July 1995

Workshop on STU-Dualities and Non-Perturbative Phenomena in Superstrings and Supergravity, CERN, Geneva, Switzerland, 27 November - 1 December 1995

Rome Triangle Workshop on Gauge Theories, Applied Supersymmetry, and Quantum Gravity
Rome, Italy, 18-22 March 1996 (speaker)

"Gauge Theories, Applied Supersymmetry, and Quantum Gravity II",
Imperial College, London, England, 5-10 July, 1996 (speaker)

SUSY '97: "The Fifth International Conference on Supersymmetries in Physics",
University of Pennsylvania, Philadelphia PA, 27-31 May 1997

"XXXIII Karpacz Winter School on Theoretical Physics, Duality, Strings, and Fields",
Karpacz, Poland, 13-22 February 1997

"Physics from the Planck scale to the Electroweak scale",
Warsaw, Poland, 2-5 April 1997 (speaker),

"Strings 1997", University of Amsterdam,
Amsterdam, Netherlands, 16-21 June 1997

"Strings 1998", Institute for Theoretical Physics,
University of California, Santa Barbara, California, 22-27 June 1998

"6th Hellenic School and Workshop on Elementary Particle Physics",
Corfu, Greece, 20-26 September, 1998 (speaker)

"Conference on Strings, Dualities, and Geometry",
University of Montreal, March 2000 (invited speaker)

"Strings 2001", Tata Institute of Fundamental Research
Mumbai, India, 5-10 January, 2001

Second Northeast String Cosmology meeting,
ISCAP, Columbia Universtiy, 19 December 2003

"AMS Special Session: K-Theory in M-Theory",
University of Oregon, Eugene, Oregon 11-13 November 2005 (invited speaker)

"Workshop on Off-Shell Supersymmetry via Graph Theory and Superspace",
Banff International Research Station, Banff, Alberta, Canada,
22-29 July 2006 (invited speaker)

Pacific Northwest Workshop on Off-Shell Supersymmetry and Graph Theory,
University of Washington, Seattle Washington, 16-22 June 2007 (invited speaker)

Malibu Workshop on Off-Shell Supersymmetry and Graph Theory,
Pepperdine University, Malibu, California, 12-16 September 2007 (invited speaker)

On the Geometry of String Compactifications,
LMU-Munich, Germany, 14-15 October, 2016

Adinkra Mini-Meeting @ Brown,
Brown University, December 19-23, 2016

Group 32 (The 32nd International Colloquium on Group Theoretical Methods in Physics)
Prague, Czech Technical University, Prague, Czech Republic, 9-13 July, 2018 (speaker)

Seminars and Colloquia Given (2000 - present)

Žilina University, Žilina, Slovakia, 14 June, 2001
seminar: *Miracles and M-Theory*

University of New Hampshire, Durham, New Hampshire, 29 October 2003
seminar: *Remnant World Lines and Shadows of Supersymmetry*,

University of Pennsylvania, Philadelphia, Pennsylvania, 16 December 2003
seminar: *Remnant World Lines and Shadows of Supersymmetry*

Columbia University, New York, New York, 18 December, 2003
ISCAP seminar: *Remnant World Lines and Shadows of Supersymmetry*,

Hobart and William Smith Colleges, Geneva, New York, 14 February 2004

faculty lunch seminar: *Spaces Within: Hidden Spatial Dimensions and the Search for Fundamental Laws of Nature*

University of Maryland, College Park, Maryland, 20 September 2004
seminar: *Envisaging Supergravity*

Columbia University, New York, 28 January 2005
ISCAP seminar: *Envisaging Supergravity*

University of Washington, Seattle, Washington, 10 February 2005
seminar: *The Veiled Architecture of Supersymmetric Gauge Theories*

SUNY Oneonta, Oneonta, New York, 19 April 2005
seminar: *Reflections on Rigatoni and the Silent Shadows of Supersymmetry*

University of Oregon, Eugene, Oregon, 12 November 2005
seminar: *The Adinkramatics of Gauge Transformations*

Banff International Research Station, Banff, Alberta, Canada, 23 July 2006
seminar: *Open Puzzles in Extended Global Supersymmetry*

University of Washington, Seattle, Washington, 17 June 2007
seminar: *The Quandary of Off-Shell Matter in Supersymmetry*

Pepperdine University, Malibu, California, 13 September 2007
seminar: *The Matter of $N = 2$ Matter*

Bard College, Annandale-on-Hudson, New York, 25 October 2007
Colloquium: *What's so Super about Symmetry?*

Gettysburg College, Gettysburg, PA, 13 February 2008
Colloquium: *Are all Particles Created Equal?*

Arnold Sommerfeld Institute, Munich, Germany, 17 July 2008
seminar: *Supersymmetry: Old Dog, New Tricks*

SUNY Oneonta, Oneonta, New York, 15 October 2008
Faculty Convivium: *Why Nature sings a symmetrical song*

SUNY Oneonta, Oneonta, New York, 18 October 2008
"mini-class" public seminar: *Will the Large Hadron Collider destroy the earth?*

Shippensburg University, Shippensburg, PA, 24 February 2009
seminar: *What Maxwell Wrought*

SUNY Oneonta, Oneonta, New York, 3 December, 2010
seminar: *On Symmetries, Supersymmetries, and Akan Symbolism*

CBPF Theory Seminar, Rio de Janiero, Brazil, 3 December, 2011
seminar: *Avoiding Central Charges in Extended Supersymmetry*

Czech Technical University, Prague, Czech Republic, 12 July, 2018
seminar: *A graph theoretic underpinning for conformal supergravity*