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| BIOGRAPHICAL SKETCH | | | | |
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| NAME  Manciu, Marian | | POSITION TITLE  Associate Professor, Physics | | |
| eRA COMMONS USER NAME  MMMANCIU | |
| **EDUCATION/TRAINING** | | | | |
| INSTITUTION AND LOCATION | DEGREE | | YEAR(s) | FIELD OF STUDY |
| University of Bucharest, Romania | B.Sc. | | 1991 | Physics |
| State University of New York at Buffalo | Ph.D. | | 2000 | Physics |
| SUNY at Buffalo, Chem. & Bio. Dept. | Postdoctoral | | 2000-2004 | Biophysics |

**A. Personal statement**

The main focus of my research is the development and application of advanced statistical methods, traditionally employed in statistical physics, for modelling and finding patterns / correlations in various systems. Some of the algorithms we developed and implemented are based on maximum entropy methods (maximum likelihood, expectation-maximization, total variation regularization, saddle point approximation and decomposition of the partition function). Other algorithms are closer connected to BioStatistical methods: Multivariate Cox proportional-hazard analysis, Singular Value Decomposition dimensionality-reduction projection methods (related to principal, factor and cluster analysis) and fuzzy logic analysis of uncertain/noisy data.

**B. Positions and Honors.**

1992 -1996 **Scientific Researcher** Nat. Inst. for Mat. Phys., Bucharest, Romania

1994 -1995 **Invited Scientific Researcher** ISI-FZ , Jülich, Germany

1996 -2000 **Research/Teaching Assist.** Physics Dept., SUNY Buffalo

2000 -2004 **Postdoc. Res. Associate** Chem. & Biol. Eng. Dept., SUNY Buffalo

2004-2010 **Assistant Professor** Phys. Dept., University of Texas at El Paso

2010-present **Associate Professor** Phys. Dept., University of Texas at El Paso

**C. Graduate students advised**

**Oscar Calvo** MS Physics 2007 (PhD Medical Physics, UTHSC San Antonio, ABR Certified: Radiation Therapy)

**Luis Vazquez-Quino** MS Physics 2008 (PhD Medical Physics, UTHSC San Antonio, ABR Certified: Radiation Therapy)

**Marco Barrera** MS Physics 2009 (Engineer III, Bohannan Houston, Inc )

**Alfonso Rodriguez**  MS Physics 2011 (Ph.D. candidate, Med. Phys., U. of Wisconsin)

**John Briceno** MS Physics 2011 (MS Medical Physics, UTHSC San Antonio,

ABR Certified: Radiation Therapy)

**Sarah Marchena-Vega** MS Physics 2012, (Physics Assistant, Texas Center for Proton Therapy, McKinney, TX)

**Erik Valdes Estrada** MS Medical Physics 2013 (Lecturer, EPCC)

**Courtney Bosse** MS Medical Physics 2013 (DMP Candidate, UTHSC San Antonio)

**William Burman** MS Physics 2015 (Applying to Medical Schools)

**Sorour Hosseini** MS Physics (degree expected: 2018)

**D. Publications (complete list)**

**Book**

**"*Nanodispersions: Interactions, Stability & Dynamics* ",** *E. Ruckenstein and M. Manciu,* Springer, Jan 2010, 699 pages **ISBN-10:** 1441914145; **ISBN-13:** 978-1441914149

**Journal Articles (**https://scholar.google.com/citations?user=mHCSCqYAAAAJ)

**(69) M. Manciu,** S. Hosseini, J. Guzman: *"Statistical Estimators for Survival Analysis at low sample numbers"* (manuscript in preparation).

**(68) M. Manciu,** R. Trevino, Z.D. Mulla, C. Cortez, S. Kupesic-Plavsic *"Detection of Biased Rating of Medical Students by Standardized Patients: Opportunity for Improvement"*, **ACADEMIC MEDICINE** (submitted DEC 2016)

**(67) M. Manciu,** S. Hosseini: "*Bridging interactions in dilute solutions of adsorbing polymers*", **BIOINTERFACE RESEARCH IN APPLIED CHEMISTRY 6(6)** DEC 2016 1788-1791.

**(66)** K. Parra, P. Valenzuela, N. Lerma, G. Rodriguez, U. Emmenegger, T. Di Desidero, G. Bocci, M. S. Felder, **M. Manciu**, R. A. Kirken, and G. Francia\*: “*Impact of CTLA-4 blockade in conjunction with metronomic chemotherapy on preclinical breast cancer growth*”, **BRITISH JOURNAL OF CANCER,** accepted, NOV 2016.

**(65)** F. S. Manciu,J. D. Ciubuc, K. Parra, **M. Manciu**, K. E. Bennet, P. Valenzuela, E. M. Sundin, W.G. Durrer, L. Reza, and G. Francia: “*Label-free Raman imaging to monitor breast tumor* signatures **TECHNOLOGY IN CANCER RESEARCH & TREATMENT,** in press, available online JULY 2016

**(64) M. Manciu,** F.S. Manciu, E. Ruckenstein: ”*On the Zeta potential and surface tension of electrolyte solutions*”, **ADVANCES IN COLLOID AND INTERFACE SCIENCE**, in press, available online JUN 2016

**(63) M. Manciu**, F. S. Manciu, E. Ruckenstein: “*Ion-specific effects on surface potential and surface tension of water solutions explained via volume exclusion effects*”, **COLLOIDS AND SURFACES A 494,** 156-161, APR 2016.

**(62)** L.A. Vazquez Quino\*, C.I Huerta Hernandez, N. Papanikolau, A. Gutierrez, C Esquivel, T Eng, **M. Manciu**, S. Stahakis: *“A Monte Carlo model for independent dose verification in IMRT and VMAT for the Varian Novalis TX with high definition MLC”* , **INTERNATIONAL JOURNAL OF CANCER THERAPY AND ONCOLOGY 3(3),** available onlineJUL 2015.

**(61)** F.S. Manciu, M. Manciu, W.G. Durrer, J.G. Salazar, K.H. Lee, K.E. Bennet**:** *"A Drude model analysis of conductivity and free carriers in boron-doped diamond films and investigations of their internal stress and strains”* **JOURNAL OF MATERIAL SCIENCES 49(16):** 5782-5789 AUG 2014

**(60) M. Manciu,** C. Bosse E. Ruckenstein**:** *“Size dependent transitions in Grafted Polymer Brushes”* **THE JOURNAL OF PHYSICAL CHEMISTRY B 117(32):** 9532-9539JUL 2013

**(59) M. Manciu,** E. Ruckenstein**:** *“Ions near the air/water interface: II Is the water interface acidic or basic ? ”* **COLLOIDS AND SURFACES A 404:** 93-100JUN 2012

**(58)M. Manciu,** E. Ruckenstein**:** *“Ions near the air/water interface: I Compatibility of zeta potential and surface tension experiments,”* **COLLOIDS AND SURFACES A 400:** 27-35,APR 2012.

**(57) M. Manciu,** E. Ruckenstein: *“Loops, Trains and Tails: A simple model for structural transformations in grafted polymer brushes*:,” **JOURNAL OF COLLOID SCIENCES 354(1):** 61-69, FEB 2011.

**(56**) T. Vulcan, S. Marchena-Vega, **M. Manciu:** *“Optical Fiber based Ionizing Radiation Microdetector,”***MEDICAL PHYSICS (37):** 3271, JUL 2010.

**(55)** J.R. Govani, W. G. Durrer, **M. Manciu**, C. Botez, and F. S. Manciu: “*Spectroscopic study of L-arginine interaction with potassium dihydrogen phosphate crystals”*, **JOURNAL OF MATERIALS RESEARCH 24(7):** 2316-2320 SEP 2009.

**(54) M. Manciu**, M. Barrera Cruz, E. Valdes Estrada: “*A Hybrid Algebraic/Inverse Radon Transform Method for Region of Interest Reconstruction of Computed Tomography Images,”* **MEDICAL PHYSICS 36**: 2445 JUL 2009.

**(53) M. Manciu,** F. S. Manciu, T. Vulcan E. Nes, R. Waggener: "*Robust Megavoltage X-ray spectra estimation from transmission measurements,"* **JOURNAL OF X-RAY SCIENCE AND TEHNOLOGY 17 (1):** 85 MAR 2009.

**(52)** **M. Manciu**, "*Modulation Transfer Function above Nyquist frequency: a robust algorithm for the edge image method*," **MEDICAL PHYSICS** 35(6): 2668 JUN 2008.

**(51) M. Manciu,** T. Vulcan, F. Manciu, E. Nes, R. Waggener: [*"A robust method for megavoltage X-ray spectra reconstruction using attenuation measurements*](http://0-apps.isiknowledge.com.lib.utep.edu/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=1DEEdGE4LDM7gDgDmj4&page=1&doc=1&colname=WOS)*"*, **MEDICAL PHYSICS** 34 (6): 2409 JUN 2007.

**(50) M. Manciu,** E. Ruckenstein: "*On possible microscopic origins of the swelling of neutral lipid bilayers induced by simple salts,*" **JOURNAL OF COLLOID AND INTERFACE SCIENCE** **309(1):** 56-67 MAY 2007.

**(49) M. Manciu** and E. Ruckenstein: "*Ions near the air-water interface,*" **JOURNAL OF COLLOID AND INTERFACE SCIENCE 304(2):** 541-544 DEC 2006.

**(48) M. Manciu,** O. Calvo and E. Ruckenstein, *" Polarization Model for Poorly-Organized Interfacial Water: Hydration Forces between Silica Surfaces,"* **ADVANCES IN COLLOID AND INTERFACE SCIENCE 127(1):** 29-42 NOV 2006**.**

**(47)** Waggener R, Terry J, **Manciu M: "**[*Derivation of diagnostic x-ray spectra using an interpolation program with calculated and measured input parameters*](http://apps.isiknowledge.com:80/WoS/CIW.cgi?SID=Z4nBNgj2FKdbdhBdg3g&Func=Abstract&doc=1/1)*,"* **MEDICAL PHYSICS 33** (6): 2016 JUN 2006.

**(46) M. Manciu** and E. Ruckenstein: "*Polarization of water near dipolar surfaces: a simple model for the anomalous dielectric behaviour*," **LANGMUIR 21 (25):**  11749-11756 DEC 2005.

**(45) M. Manciu** and E. Ruckenstein: "*On the interactions between ions and the air/water interface*" **LANGMUIR 21(24)**: 11312-11319 DEC 2005.

**(44)** H. H. Huang, **M. Manciu** and E. Ruckenstein: "*On the restabilization of protein-covered latex colloids at high ionic strengths,*" **LANGMUIR**  **21(1):** 94-99 JAN 4 2005.

**(43) M. Manciu** and E. Ruckenstein: "*The polarization model for the hydration / double layer interactions: the role of the electrolyte ions ,*" **ADVANCES IN COLLOID AND INTERFACE SCIENCE 112(1-3):** 109-128, DEC 2004.

**(42) M. Manciu** and E. Ruckenstein: Comments on the "*Osmotic coefficients and Surface Tension of Aqueous Electrolyte Solutions : Role of the Dispersion Forces,*" **JOURNAL OF PHYSICAL CHEMISTRY B** **108 (52)**: 20479-20481 DEC 30 2004.

**(41) M. Manciu** and E. Ruckenstein: " *On the Monomer Density of Grafted Polyelectrolyte Brushes and Their Interactions*," **LANGMUIR 20(19):** 8155-8164, SEP 2004.

**(40) M. Manciu** and E. Ruckenstein: *“Simple model for grafted polymer brushes,*“ **LANGMUIR 20 (15)**: 6490-6500, JUL 2004.

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**(38) M. Manciu** and E. Ruckenstein: "*Jamming coverage in the Random Sequential Adsorption of a binary mixture of disks,*" **COLLOIDS AND SURFACES A 232 (1):** 1-10 JAN 2004.

**(37)** E. Ruckenstein and **M. Manciu**: "*Specific ion effects via ion hydration: II Double layer interactions*," **ADVANCES IN COLLOID AND INTERFACE SCIENCE 105(1-3):** 177-200, SEP 2003.

**(36)** **M. Manciu** and E. Ruckenstein: " *Specific ion effects via ion hydration: I Surface tension*," **ADVANCES IN COLLOID AND INTERFACE SCIENCE 105(1-3):** 63-101, SEP 2003.

**(35)** H.H. Huang, **M. Manciu** and E. Ruckenstein: "*The Effect of Surface Dipoles and Nonuniformity of the Electric Field in the Liquid on the Repulsive Force,*" **JOURNAL OF COLLOID AND INTERFACE SCIENCE 263(1)**: 156-161 JUL 2003.

**(34)** **M. Manciu** and E. Ruckenstein: "*On the Chemical Free Energy of the Electrical Double Layer*," **LANGMUIR 19(4):** 1114-1120 JAN 2003.

**(33)** **M. Manciu** and E. Ruckenstein: "*On the Long Range Interactions between Apoferritin Molecules,*" **LANGMUIR 18(23):** 8910-8918 DEC 2002.

**(32)** E. Ruckenstein and **M. Manciu:** "*The Coupling between the Hydration and the Double Layer Interactions*," **LANGMUIR** **18(20):** 7584-7593 OCT 1 2002.

**(31)** **M. Manciu** and E. Ruckenstein: "*Lattice Site Exclusion Effect on the Double Layer Interaction*," **LANGMUIR** **18 (13):** 5178-5185 JUN 25 2002.

**(30)** **M. Manciu** and E. Ruckenstein: *"The Interaction between Two Fluctuating Phospholipid Bilayers,*" **LANGMUIR 18 (11):** 4179-4182 MAY 28 2002.

**(29)** E. Ruckenstein and **M. Manciu**: "*On the Stability of the Common and Newton Black Films*," **LANGMUIR**, **18(7):** 2727-2736, APR 2002.

**(28)** **M. Manciu** and E. Ruckenstein: " *The Van der Waals Free Energy of an Oil-Water Pair in a Multilayer*," **JOURNAL OF COLLOID AND INTERFACE SCIENCE** **244(1):** 208-210, DEC 2001.

**(27)** **M. Manciu** andE**.** Ruckenstein: "*Oscillatory and Monotonic Polarization. The Polarization Contribution to the Hydration Force,*" **LANGMUIR 17 (24):** 7582-7592, NOV 27 2001.

**(26)** **M. Manciu** and E. Ruckenstein: "*Role of the Hydration Force in the Stability of Colloids at High Ionic Strengths*," **LANGMUIR** **17 (22):** 7061-7070, OCT 30 2001.

**(25)** E. Ruckenstein and **M. Manciu**: "*On the Stability of Lyotropic Lamellar Liquid Crystals and the Thicknesses of Their Lamellae,"* **LANGMUIR 17 (18):** 5464-5475, SEP 4 2001.

**(24)** **M. Manciu** and E. Ruckenstein: "*Free Energy and Thermal Fluctuations of Neutral Lipid Bilayers*," **LANGMUIR 17 (8):** 2455-2463, APR 2001.

**(23)** S. Sen and **M. Manciu**: "*Solitary wave dynamics in a chain of elastic spheres: an improved solution of the equation of motion*", **PHYSICAL REVIEW E (64):** 056605 1-4, NOV 1 2001.

**(22)** S. Sen, F.S. Manciu and **M. Manciu**: "*Thermalizing an impulse*," **PHYSICA A 299 (3-4):**551-558, OCT 15 2001.

**(21)** **M. Manciu**, S. Sen and A.J. Hurd: "*Impulse propagation in dissipative and disordered chains with power-law repulsive potentials*," **PHYSICA D** **157 (3):** 226-240, SEP 15 2001.

**(20)** S. Sen, **M. Manciu**, R.S. Sikovits and A.J. Hurd: "*Nonlinear Acoustics in Granular Assemblies*" **GRANULAR MATTER 3 (1-2):** 29-32, MAR 2001.

**(19)** **M. Manciu**, S. Sen and A.J. Hurd: "*Crossing of identical solitary waves in a chain of elastic beads*," **PHYSICAL REVIEW E 63**: 016614 1-6, JAN 2001.

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**(15)** S. Sen and **M. Manciu:** "*Discrete Hertzian chains and solitons* ," **PHYSICA A 268** **(3-4):** 644-649 JUN 15 1999.

**(14)** S. Sen, **M. Manciu** and J.D. Wright: "*Solitonlike pulses in perturbed and driven Hertzian chains and their possible applications in detecting buried impurities*," **PHYSICAL REVIEW E 57 (2):** 2386-2397, FEB 1998.

**(13)** F.S. Manciu, **M. Manciu** and S. Sen: “*Controlled ejection of ferrofluid grains from a dilute ferrofluid using nonlinear acoustic pulsing*," **JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS 220:** 285-292, OCT 2000.

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**(11)** R. Popescu, D. Macovei, **M. Manciu**, F. Zavaliche, D. Fratiloiu, A. Jianu, A. Devenyi, R. Manaila, Y. Xie, T. Hu, B.R. Orton, R.J. Cernik and C.C. Tang: "*The Au-substituted Al-Cu-Fe icosahedral phase: Evidence for bond hybridization* ," **JOURNAL OF PHYSICS-CONDENSED MATTER 9 (36):** 7523-7540, SEP 8 1997.

**(10)** R. Manaila, B.R. Orton, D. Macovei**, M. Manciu** and I. AdilSmith: "*Bond hybridization in Au alloys: Extracting structural information from the X-ray-absorption white line*," **PHYSICAL REVIEW B 53 (13):** 8164-8167, APR 1 1996.

**(9)** R. Popescu, A. Jianu, **M. Manciu**, R. Nicula and R. Manaila: "*Chemical trends of icosahedral order in Al-Cu-TM quasi-crystals*," **JOURNAL OF ALLOYS AND COMPOUNDS 221**: 240-247, APR 15 1995.

**(8)** O. Malis, **M. Manciu**, R. Manaila and A. Devenyi: "*Effect of intergrowth deffects on the X-Ray diffraction pattern : A case-study of Bi-based Superconductors* " **PHYSICA STATUS SOLIDI A 147 (2)**: 325-333, FEB 1995.

**(7)** R. Manaila, O. Malis, **M. Manciu** and A. Devenyi: *" Effect of intergrowth deffects on the X-Ray diffraction pattern* ," **PHYSICA STATUS SOLIDI A 147 (1):** 31-43, JAN 16 1995.

**(6)** **M. Manciu**, P. Kordos, H. Hartdegen and R. Manaila : "*Structural parameters of multilayers as deduced from X-ray specular reflectivity: Effect of statistical thickness fluctuations*," **JOURNAL OF APPLIED CRYSTALLOGRAPHY 29 (6):** 632-637, DEC 1 1996.

**(5)** **M. Manciu**, L. Dudas, C. Surgers and R. Manaila :"*Structural parameters of multilayers from X-Ray reflectivity - an easy to handle approach*," **JOURNAL OF APPLIED CRYSTALLOGRAPHY 28 (2):** 160-167, APR 1 1995.

**(4)** A. Devenyi, R. Manaila, A. Belu-Marian, D. Macovei, **M. Manciu**, E.M. Popescu, M. Tanase, D. Fratiloiu, N.D. Mihai, P.B. Barna, J. Labar, G. Safran, A. Kovacs and T. Braun: *"Nanocrystalline gold in Au-doped thin C60 films*," **THIN SOLID FILMS 335** **(1-2):** 258-265, DEC 1998.

**(3)** B. Mishori, Y. Shapira, A. BeluMarian, **M. Manciu** and A. Devenyi: "*Studies of C60 thin films using surface photovoltage spectroscopy*," **CHEMICAL PHYSICS LETTERS 264** **(1-2):**163-167, JAN 3 1997.

**(2)** A. Belu-Marian, R. Manaila, T. Stoica, A. Dragomir, **M. Manciu**, A. Devenyi and T. Braun: "*Effects of annealing on the conductivity of C60 Thin-Films*," **FULLERENE SCIENCE & TECHNOLOGY 3 (5):** 495-509, 1995.

**(1) M. Manciu**, R. Manaila and A. Devenyi: "*Stacking defects in C60 films*," **FULLERENE SCIENCE & TECHNOLOGY 2 (3):** 255-289, 1994.

**E. Research Support**

**Pending**

“*Development of a targeted computational laboratory for undergraduate students' research readiness*” (NSF, $299,721, PI: Marian Manciu)

**Completed**

"*Increasing Minority Representation in Radiation Oncology Physics*" ( NIH, $508,000, 2006-2009, PI: Marian Manciu)

"*Design and classroom implementation of a Ionizing Radiation Microdetector”* (Ocean Optics, $ 3,000, 2008, PI: Marian Manciu)

"*ARRA: Summer Research Experiences for Students and Science Educators: The Medical Physics Challenge*" (NIH, $61,000, 2009-2010, PI: Marian Manciu)

“*Development and analysis of a new Preclinical model of Her-2 positive human breast cancer”* (UTEP IDR, $20, 000, 2013-2014, PI: Giulio Francia)

“*The Role of Breast Cancer Organ Specific Metastasis on the Therapeutic Impact of Anti-Cancer Drugs*” (UTEP IDR, $20,000 2014-2015, PI: Giulio Francia)