

Enrico Gratton

Curriculum Vitae

Current Address

University of California, Irvine
Department of Biomedical
Engineering
3210 Natural Sciences II
Irvine, CA 92697-2715, USA

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Education

Doctorate degree: Physics, University of Rome (1969)
Thesis: "The acid denaturation of DNA" (Advisor: Professor Mario Ageno).

Employment:

2006-present: Professor, Department of Biomedical Engineering, UCI
2006-present: Emeritus Professor, Department of Physics, Univ. of Illinois, Urbana-Champaign (UIUC)
1986-present: Principal Investigator and Director, Laboratory for Fluorescence Dynamics
1989-2006: Professor, Departments of Physics and Biophysics, UIUC
1984-1989: Associate Professor, Department of Physics, UIUC
1978-1984: Assistant Professor, Department of Physics, UIUC
1976-1978: Research Associate, Biochemistry Department (advisor: Gregorio Weber), UIUC
1971-1977: Researcher, SNAM PROGETTI, Monterotondo, Italy
1970: Fellowship, Istituto Superiore di Sanita Rome (advisor: Prof. Mario Ageno)

Research Areas:

Protein Aggregation
Membrane interactions
Migration of cells
Tracking moving particles
Analyzing collagen formation and deformation
Noninvasive optical technology methods for studying breast cancer
Fluorescence microscopy
Image correlation spectroscopy
Membran protein-lipid interactions

Consulting Activities:

2006-current: Abbott, Illinois
2007 – 2009: Allergan, Inc. Irvine, CA
2006: Pacific Biosciences, Menlo Park, CA

Recent Honors & Awards:

- Awarded the "Gregorio Weber Award for Excellence in Fluorescence Theory and Application," Biological Fluorescence Subgroup, at the Biophysical Society,

- February 2005.
- Awarded Membership of Academia Nacional De Ciencias, Argentina 2012
 - Avanti Polar Award 2019
 - AIMBE Fellow, 2019
 - Program Advisory Committee of the University of Illinois at Urbana-Champaign, 8/11/2005.
 - 2003: Listed on "Incomplete List of Teachers Ranked as Excellent by their Students," for Spring Semester, Physics 101: General Physics.
 - 1991-1992: Associate in the Center for Advanced Study
 - 1987-1988: University of Illinois, Xerox Award for Faculty Research, April 1988.

Professional Activities

- 2004: Program Committee Member, Optical Society of American Topical Meeting: Optical Techniques in Neuroscience, April 2004.
- 2003: Chair, Biological Fluorescence Subgroup of the Biophysical Society Meeting, San Antonios, March 2003.
- 2002: Chair, Biological Fluorescence Subgroup of the Biophysical Society Meeting, San Francisco, February 2002.
- 2000: Program Committee, Optical Imaging Workshop, "From Bench to Bedside." Natcher Center, National Institutes of Health, Bethesda, MD, September 7-8, 2000.
- 1986-present: Organizer, International Weber Symposium on Innovative Fluorescence Methodologies in Biochemistry and Medicine.
- 1986-present: Globals Unlimited© Author of the kernel of the commercialized software package (analyzes frequency and time domain fluorescence data).

Science Advisory Committee Memberships

- Scientific Advisory Board (Fachbeirat), the Max Planck Institute for Biophysical Chemistry, 2004-2010.
- CNR, Institute of Biology, Genoa, Italy, 2001-2012.
- Cellular and Molecular Biology Group, National Flow Cytometry Resource, Los Alamos National Laboratory, Los Alamos, NM, 1990-2000.
- The Sincrotrone Trieste, Trieste, Italy, 1990-2000.
- National Institutes of Health, Division of Research Grant Advisory Committee, Bethesda, MD, 1997.
- Biomedical Magnetic Resonance Research and Technology Resource (NIH), Urbana, IL, 1996-2002.

Society Memberships

- Biophysical Society
- American Physical Society
- Optical Society of America

Editorial Boards:

Biophysical Journal, 2003-2009
Journal of Fluorescence, 1992-97

Comments On Molecular and Cellular Biophysics, 1995-96.

Administrative Services to the University (Departmental)

- Bobone Award Comm UIUC.
- Ph.D. Qualifying Exam UIUC and UCI
- Liaison to Medical Scholars Program UIUC
- Grad. Student Academic Advisor UIUC and UCI
- Molecular Biophysics Seminars (UIUC)

Service to the International Community

- The Maria Pia Gratton International Travel Fellowship

Scientific Journals and Manuscripts Reviews

- Analytical Biochemistry
- Biochemistry
- Biochimica et Biophysica Acta
- Biophysical Journal
- Journal of Biochemical and Biophysical Methods
- Journal of Physical Chemistry
- Photochemistry and Photobiology
- Nature Biotechnology
- Nature Methods
- PlosONE

Grants Reviews

- Department of Energy
- National Institutes of Health
- National Science Foundation
- Petroleum Research Fund
- The Wellcome Trust
- University of Illinois
- University of Missouri
- W. M. Keck Foundation

Courses Taught

University of California, Irvine

Winter 2006

BME 297 – PhD Dissertation Research

Spring 2006

BME 297 – PhD Dissertation Research

Fall 2006

BME 297 – PhD Dissertation Research

Winter 2007

BME 195/295 – Spectroscopy& Imag Bio System (undergraduate& graduate)

BME 297 – PhD Dissertation Research

BME 299 – Individual Research

Spring 2007

BME 170 – Biomedical Engineering Lab (undergraduate)

BME 297 – PhD Dissertation Research

Fall 2007

BME 195/295 – Bio-Spectroscopy (undergraduate & graduate)

BME 297 – PhD Dissertation Research

BME 299 – Individual Research

Winter 2008

BME 297 – PhD Dissertation Research

BME 299 – Individual Research

Spring 2008

BME 170 – Biomedical Engineering Lab (undergraduate)

BME 299 – Individual Research

Fall 2008 2019

BME 138/238 – Bio-Spectroscopy (undergraduate & graduate)

BME 299 – Individual Research

University Service

APAC Committee at UCI School of Engineering (2012-2017)

Departmental Committees (Biomedical Engineering

Faculty Awards Committee, Chair (2007-2009)

Faculty Recruitment Committee, Assistant - Associate Positions, Chair (2007-2008)

Retreat Planning Committee, member (2008-2010)

Classroom Teaching Assignments (UIUC)

- 1996-97: Physics 450
- 1997-98: Physics 450 (Frauenfelder Notes)
- Spring 1998 : Physics 102
- Fall 1999: Physics 101
- Fall 2000: Physics 301
- Fall 2001: Physics 101
- Spring 2003: Physics 101; Listed on "*Incomplete List of Teachers Ranked as Excellent by their Students.*"
- Fall 2003: Physics 398OS
- Spring 2004: Physics 450
- Fall 2004: Physics 598OS
- Fall 2005: Physics 102 Discussion

- August 2005: Awarded the "6th Annual MSPAC Outstanding Advisor Award" by the Medical Scholars Program Advisory Committee of the University of Illinois at Urbana-Champaign

Teaching/Advising/Supervising:

Graduate Students:

Graduation Date:

1. Simon Leemans (2019)

Past graduate students (Year Degree was Completed), present status, if known:

1. Ottavia Golfetto (2011)
2. Chi-Li Chiu (2012) , Imaris.
3. Kaveh Azartash (2010)
4. Giulia Ossato (2010), Leica (Germany)
5. Peter Fwu
6. Cosimo Arnesano(2010) Zeiss US
7. Ylenia Santoro(2010 Masimo (CA)
8. Shanshan Xu(2010)
9. Francesco Cutrale(2010) USC
10. Molly Rosso (2009)
11. Ryan Colyer (Ph.D., 2008), currently at UCLA, Los Angeles, CA
12. Claudia Lee (Ph.D., 2007), currently at UVP Inc., Upland, CA
13. Shwayta Kukreti (Ph.D., 2007), currently in Medical Scholars Program, University of Illinois at Urbana-Champaign
14. Kandice Tanner (Ph.D., 2006), currently at Univ. of California, Berkeley
15. Anna Celli (2006), currently at Veterans Affairs Medical Center, UCSF
16. D. Eckhoff (Ph.D., 2006), currently at Webster University, St. Louis, MO
17. Chiara Polzonetti (M.S., 2006)
18. Abdel Tahari (2005), currently finishing Medical Scholars Program, UIUC*
19. Natalia Machado (M.S., 2005)
20. Jee-Hyun Choi (Ph.D., 2003), currently at Samsung Advanced Institute of Technology, South Korea
21. John Eid (Ph.D., 2003), currently at Rowland Institute at Harvard, Cambridge, MA
22. Osman Akcakir (Ph.D., 2002), currently at Molecular Biology Consortium, Chicago, IL
23. L. Adelina Paunescu (Ph.D., 2001), currently at MIT, Cambridge, MA
24. Timothy Ragan (Ph.D., 2001), currently at MIT, Cambridge, MA
25. Claudia Casavola (2000-Italian doctorate), currently in Italy
26. Matthia Filiaci (Ph.D., 2000), currently at Rutter Associates, NY
27. Yan Chen (Ph.D., 1999), currently at University of Minnesota
28. Albert Cerussi (Ph.D., 1999), currently at Beckman Institute, CA
29. Scott Walker * (Ph.D., 1998; M.D., 2001), currently at University of Colorado Health Sciences Center
30. Chen-Yuan Dong (Ph.D., 1997), currently at National Taiwan University, Republic of China
31. J. Maier* (Ph.D., 1997), currently at Chemimage Corp, PA
32. Todd French (Ph.D., 1996), currently at Molecular Devices, Inc., Sunnyvale, CA
33. Keith Berland (Ph.D., 1995), currently at Emory University, GA
34. Jenny Carrero (Ph.D., 1994), currently at Unilever, NY
35. Joshua Fishkin (Ph.D., 1994), currently at Boeing, Los Angeles, CA
36. Brett Feddersen (Ph.D., 1993), currently at Frasca, Champaign, IL

37. Norberto Silva (Ph.D., 1993), currently at Mayo Clinic, Rochester, NY
38. J. L. Vittitow (Ph.D., 1990)
39. David W. Piston (Ph.D., 1989), currently at Washington University, St. Louis, MO
40. S. L. Lin (Ph.D., 1988)
41. Jose R. Alcalá (Ph.D., 1987), deceased
42. M. K. Limkeman (Ph.D., 1984), currently at Milwaukee GE Medical Center, WI
43. C. J. Hardy (Ph.D., 1983), currently at Medical Center Schenckdedy, NY

*Medical Scholars Program

Research Associates (Post-doctorate):

At UCI

1. Michelle Digman
2. Luca Lanzano
3. Ilaria Altamore
4. Francesco Cardarelli
5. Laura Estrada
6. Chiara Stringari
7. Leonel Malacrida
8. Per Niklas Hedde
9. Suman Ranjit
10. Lorenzo Scipioni
11. Chris Heylman
12. Ylenia Santoro
13. Bo Chen (2009-2010)
14. Kandice Tanner (2007-2008), currently at Univ. of California, Berkeley
15. Enrico D'Amico (2002-2007), currently at Univ. of California, Irvine
16. Michelle Digman (2003-2008), currently at Univ. of California, Irvine
17. Christian Hellriegel (2006-2008), currently at Zeiss
18. Jay Unruh (2006-2008), currently at Stowers Institute for Medical Research, Kansas City, MO
19. Alexander Vallmitjana Lees
20. Paolo Annibale
21. Andrea Anzalone
22. Margaux Bouzin
23. Luca Dalbosco
24. Oliver Holub
25. Elizabeth Hinde

At UIUC

1. Nicholas Barry (1997-2003), currently at Univ. of Colorado, Health Sciences Ctr, Denver
2. Joseph M. Beechem (1987-89), currently at Molecular Probes, Oregon
3. Luis A. Bagatolli (1997-00), currently at University of Southern Denmark
4. Christof Buehler (1996-98), currently at Paul Scherrer Institute, Switzerland
5. Mateo Calderon-Arnulphi (2002-05), currently at University of Illinois at Chicago
6. Yan Chen (1998-00), currently at University of Minnesota
7. Andrea De Oliveira (2003-2006), currently at Universidade Federal do Rio de Janeiro, Brazil
8. Svante Eriksson (1992-93)

9. Sergio Fantini (1993-96), currently at Tufts University, Massachusetts
10. Mari A. Franceschini (1993-99), currently at Massachusetts General Hospital
11. Katerina Kis-Petikova (1999-2001), currently at Institute of Biophysics & Radiation Biology, Budapest, Hungary
12. Valeria Levi (2003-2006), currently at University of Buenos Aires, Argentina
13. Jochen Müller (1997-00), currently at University of Minnesota
14. Gina Perez (2002), currently at Vanderbilt University Medical Center
15. Qiaoqiao Ruan (2003-2004), currently at Abbott Labs, Illinois
16. Cathy A. Royer (1988-91), currently at CNRS, France
17. Larissa P. Safonova (2000-2003), currently in Russia
18. Parijat, Sengupta (2004-), currently at SUNY Stony Brook, NY
19. Peter T. C. So (1992-96), currently at Massachusetts Institute of Technology
20. Allain Sillen (1999-2002)
21. Martin Wolf (1998-2001)
22. Ursula Wolf (1999-2001)
23. Weiming Yu (1997-2000), currently at Indiana University

Visiting Scholars (more than 6 months):

1. Paul Wiseman (2007-2008)
2. Andre M. O. Gomes (2003)
3. Wooseok Ko (2004)

Research Technicians:

1. Viera Crosignani
2. Elizabeth Hinde
3. Claudia Magauidda
4. Milka Stakic
5. Ben Pruess (2008)
6. Jennifer Sasaki (2007-present)
7. Christine M. Larson (1991-1997)
8. Ruth M. Rusch (1987-1990)

Visiting Scholars (more than 6 months)

1. Paul Wiseman (2007-2008), currently at McGill University, Montreal, QC, Canada

Extramural Support:

Since joining UCI, I brought support grants for about \$28M, from NIH and Keck foundation

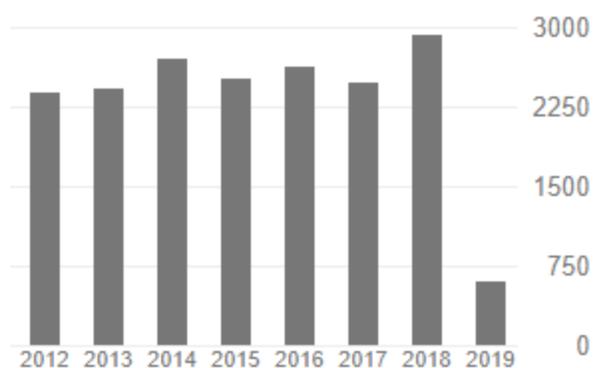
Publications

A complete list of publication and citations including 2019- can be found at <https://scholar.google.com/citations?hl=en&user=Pb-ZWXEAAAAJ>

Cited by

[VIEW ALL](#)

	All	Since 2014
Citations	46297	13892
h-index	116	59
i10-index	496	318



Book Chapters:

- B-1 di Rienzo C, Gratton E, Beltram F, Cardarelli F. **Super-Resolution in a standard microscope: from fast fluorescence imaging to molecular diffusion laws in live cells.** *Super-Resolution Imaging in Biomedicine*. By A Diaspro and MAMJ van Zandvoort (Editors). CRC Press, pp. 19-43, 2016. ISBN: 9781482244342
- B-2 Gratton E. **Measurements of fluorescence decay time by the frequency domain method.** *Perspectives on Fluorescence: A Tribute to Gregorio Weber* (Springer Series on Fluorescence). By DM Jameson (Editors). Springer Berlin Heidelberg, 2016.
- B-3 Cardarelli F, Gratton E. **Spatiotemporal fluorescence correlation spectroscopy of inert tracers: a journey within cells, one molecule at a time.** *Perspectives on Fluorescence: A Tribute to Gregorio Weber* (Springer Series on Fluorescence). By DM Jameson (Editors). Springer Berlin Heidelberg, 2016.
- B-4 Gratton E, Digman MA. **Laurdan identifies different lipid membranes in eukaryotic cells.** *Cell Membrane Nanodomains: From Biochemistry to Nanoscopy*. By A Cambi and DS Lidke (Editors). CRC Press, pp. 283-304, 2014. ISBN: 9781482209891
- B-5 Golfetto O, Hinde E, Gratton E. **The Laurdan spectral phasor method to explore membrane micro-heterogeneity and lipid domains in live cells.** *Methods in Membrane Lipids* (Methods in Molecular Biology, Vol. 1232). By DM Owen (Editors). Springer New York, pp. 273-290, 2014. ISBN: 9781493917518
- B-6 Digman MA, Gratton E. **The phasor approach to fluorescence lifetime imaging: exploiting phasor linear properties.** *Fluorescence Lifetime Spectroscopy and Imaging: Principles and Applications in Biomedical Diagnostics*. By L Marcu, PMW French, and DS Elson (Editors). CRC Press, pp. 235-248, 2014. ISBN: 9781439861677
- B-7 Gratton E, Stakic M, Digman MA. **Raster image correlation spectroscopy and number and brightness analysis.** *Fluorescence Fluctuation Spectroscopy (FFS) Part A* (Methods in Enzymology, Vol. 518). By SY Tetin (Editors). Academic Press, pp. 121-144, 2013. ISBN: 9780123884220
- B-8 Levi V, Gratton E. **Three-dimensional particle tracking in a laser scanning fluorescence microscope.** *Single-particle tracking and single molecule energy transfer*. By C Bräuchle, DC Lamb, and J Michaelis (Editors). Wiley VCH, pp. 3-24, 2010. ISBN: 9783527322961

- B-9 Gratton E, Toronov VY, Wolf U, Wolf M. **Detection of brain activity by near-infrared light.** *Biomedical Optical Imaging*. By JG Fujimoto and D Farkas (Editors). Oxford University Press, pp. 378-395, 2009. ISBN: 9780195150445
- B-10 Sánchez SA, Tricerri MA, Gunther G, Gratton E. **Laurdan generalized polarization: from cuvette to microscope.** *Modern Research and Educational Topics in Microscopy. Vol. 3: Applications in Physical/Chemical Sciences* (Microscopy Book Series, Vol. 3). By A Méndez-Vilas and J Díaz (Editors). Formatex Research Center, Badajoz, Spain, pp. 1007-1014, 2007. ISBN: 9788461194209
- B-11 Celli A, Lee CY, Gratton E. **Fluorescence microscopy to study pressure between lipids in giant unilamellar vesicles.** *Methods in Membrane Lipids* (Methods in Molecular Biology, Vol. 400). By AM Dopico (Editors). Humana Press, pp. 333-340, 2007. ISBN: 9781588296627
- B-12 Digman MA, Gratton E. **The RICS method: measurement of fast dynamics in cells with the laser scanning microscope.** *Image Analysis in Medical Microscopy and Pathology*. By HS Wu and AJ Einstein (Editors). Research Signpost, Kerala, India, pp. 207-224, 2007. ISBN: 8130801167
- B-13 Gratton E, vandeVen MJ. **Laser sources for confocal microscopy.** *The Handbook of Biological Confocal Microscopy (Third Edition)*. By JB Pawley (Editors). Springer-Verlag New York, pp. 80-125, 2006. ISBN: 9780387259215
- B-14 Gratton E, Breusegem SY, Barry NP, Ruan Q, Eid JS. **Fluctuation correlation spectroscopy in cells: determination of molecular aggregation.** *Biophotonics: Optical Science and Engineering for the 21st Century* (Vol. XVIII). By X Shen and R van Wijk (Editors). Springer Verlag, pp. 1-14, 2006. ISBN: 9780387249957
- B-15 Gratton E, Fantini S. **Reflectance and transmittance spectroscopy.** *Laser and Current Optical Techniques in Biology* (Comprehensive Series in Photochemical & Photobiological Sciences). By G Palumbo and R Pratesi (Editors). Royal Society of Chemistry, pp. 211-258, 2005. ISBN: 9780854043217
- B-16 Palumbo G, Pratesi R, Gratton E, Fantini S, Häder DP, Jori G. **Reflectance and transmittance spectroscopy.** *Lasers and Current Optical Techniques in Biology* (Comprehensive Series in Photochemical & Photobiological Sciences). By G Palumbo and R Pratesi (Editors). Royal Society of Chemistry, pp. 213-247, 2004. ISBN: 9780854043217
- B-17 Dong CY, French TE, So PTC, Buehler C, Berland KM, Gratton E. **Fluorescence-lifetime imaging techniques for microscopy.** *Digital Microscopy. A second edition of "Video Microscopy"* (Methods in Cell Biology, Vol. 72). By G Sluder and DE Wolf (Editors). Academic Press, pp. 431-464, 2003. ISBN: 9780125641692
- B-18 Beechem JM, Gratton E, Ameloot M, Knutson JR, Brand L. **The global analysis of fluorescence intensity and anisotropy decay data: second-generation theory and programs.** *Topics in Fluorescence Spectroscopy: "Principles"* (Vol. 2). By JR Lakowicz (Editors). Springer US, pp. 241-305, 2003. ISBN: 9780306438752
- B-19 Müller JD, Chen Y, Gratton E. **Fluorescence correlation spectroscopy.** *Biophotonics, Part B* (Methods in Enzymology, Vol. 361). By G Marriott and I Parker (Editors). Academic Press, pp. 69-92, 2003. ISBN: 9780121822644
- B-20 Bagatolli LA, Sánchez SA, Hazlett TL, Gratton E. **Giant vesicles, Laurdan, and two-photon fluorescence microscopy: evidence of lipid lateral separation in bilayers.** *Biophotonics, Part A* (Methods in Enzymology, Vol. 360). By G Marriott and I Parker (Editors). Academic Press, pp. 481-500, 2003. ISBN: 9780121822637
- B-21 Learmonth RP, Gratton E. **Assessment of membrane fluidity in individual yeast cells by Laurdan Generalized Polarization and multi-photon scanning fluorescence microscopy.** *Fluorescence Spectroscopy, Imaging and Probes* (Vol. 2). By R Kraayenhof, AJWG Visser, and HC Gerritsen (Editors). Springer-Verlag Berlin, Heidelberg, New York, pp. 241-252, 2002. ISBN: 9783540427681
- B-22 Dong CY, Buehler C, So PTC, French T, Gratton E. **Biological applications of time-resolved, pump-probe fluorescence microscopy and spectroscopy in the frequency domain.** *Methods In Cellular Imaging* (Methods in Physiology Series, Vol. IV). By A Periasamy (Editors). Springer New York, pp. 324-340, 2001. ISBN: 9780195139365

- B-23 Parasassi T, Bagatolli LA, Gratton E, Levi M, Ursini F, Yu W, Zajicek HK. **Two-photon excitation microscopy for image spectroscopy and biochemistry of tissues, cells, organelles and lipid vesicles under physiological conditions.** *Confocal and Two-Photon Microscopy: Foundations, Applications and Advances*. By A Diaspro (Editors). John Wiley & Sons, New York, pp. 469-482, 2001. ISBN: 9780471409205
- B-24 Chen Y, Müller JD, Eid JS, Gratton E. **Two-photon fluorescence fluctuation spectroscopy.** *New Trends in Fluorescence Spectroscopy: Applications to Chemical and Life Sciences* (Springer Series on Fluorescence). By B Valeur and JC Brochon (Editors). pp. 277-296, 2001. ISBN: 9783540677796
- B-25 Müller JD, Chen Y, Gratton E. **Photon counting histogram statistics.** *Fluorescence Correlation Spectroscopy. Theory and Applications* (Springer Series in Chemical Physics, Vol. 65). By R Riegler and EL Elson (Editors). Springer-Verlag, Berlin, pp. 410-437, 2001. ISBN: 9783540674337
- B-26 Yu W, Mantulin WW, Gratton E. **Fluorescence lifetime imaging: new microscopy technologies.** *Emerging Tools for Single-Cell Analysis* (Advances in Optical Measurement Technologies). By G Durack and JP Robinson (Editors). Wiley-Liss, pp. 139-173, 2000. ISBN: 9780471315759
- B-27 Dong CY, Kim KH, Buehler C, Hsu L, Kim H, So PTC, Masters BR, Gratton E, Kochevar IE. **Probing deep-tissue structures by two-photon fluorescence microscopy.** *Emerging Tools for Single-Cell Analysis* (Advances in Optical Measurement Technologies). By G Durack and JP Robinson (Editors). Wiley-Liss, Inc, pp. 221-237, 2000. ISBN: 9780471315759
- B-28 Masters BR, So PTC, Gratton E. **Multiphoton excitation microscopy and spectroscopy of cells, tissues, and human skin in vivo.** *Fluorescent and Luminescent Probes for Biological Activity: A Practical Guide to Technology for Quantitative Real-Time Analysis (Second Edition)* (Biological Techniques Series). By WT Mason (Editors). Academic Press, pp. 414-432, 1999. ISBN: 9780124778306
- B-29 Masters BR, So PTC, Kim KH, Buehler C, Gratton E. **Multiphoton excitation microscopy, confocal microscopy, and spectroscopy of living cells and tissues; functional metabolic imaging of human skin in vivo.** *Confocal Microscopy* (Methods in Enzymology, Vol. 307). By JN Abelson, MI Simon, and PM Conn (Editors). Academic Press, pp. 513-36, 1999. ISBN: 0121822087
- B-30 French TE, So PTC, Dong CY, Berland KM, Gratton E. **Fluorescence lifetime imaging techniques for microscopy.** *Video Microscopy* (Methods in Cell Biology, Vol. 56). By G Sluder and DE Wolf (Editors). Academic Press, pp. 277-304, 1998. ISBN: 9780126491609
- B-31 Masters BR, So PTC, Gratton E. **Multiphoton excitation microscopy of in vivo human skin. Functional and morphological optical biopsy based on three-dimensional imaging, lifetime measurements and fluorescence spectroscopy.** *Advances in Optical Biopsy and Optical Mammography* (Annals of the New York Academy of Sciences, Vol. 838). pp. 58-67, 1998. ISBN: 9781573311267
- B-32 So PTC, Dong CY, Berland KM, French TE, Gratton E. **Time-resolved stimulated-emission and transient-absorption microscopy and spectroscopy.** *Nonlinear and Two-Photon-Induced Fluorescence* (Topics in Fluorescence Spectroscopy, Vol. 5). By JR Lakowicz (Editors). Plenum Press, New York, pp. 427-469, 1997. ISBN: 9780306455537
- B-33 Gratton G, Fabiani M, Corballis PM, Gratton E. **Noninvasive detection of fast signals from the cortex using frequency-domain optical methods.** *Imaging Brain Structure and Function: Emerging Technologies in the Neurosciences* (Annals of the New York Academy of Sciences, Vol. 820). By DS Lester, CC Felder, and EN Lewis (Editors). pp. 286-298, 1997. ISBN: 9781573310697
- B-34 So PTC, French TE, Yu W, Berland KM, Dong CY, Gratton E. **Two-photon fluorescence microscopy: time-resolved and intensity imaging.** *Fluorescence Imaging Spectroscopy and Microscopy* (Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications. Vol. 137). By XF Wang and B Herman (Editors). John Wiley & Sons, pp. 351-374, 1996. ISBN: 9780471015277
- B-35 Gratton E, vandeVen MJ. **Laser sources for confocal microscopy.** *The Handbook of Biological Confocal Microscopy (Second Edition)*. By JB Pawley (Editors). Springer-Verlag New York, pp. 69-97, 1995. ISBN: 0306448262
- B-36 vandeVen MJ, Gratton E. **Time-resolved fluorescence lifetime imaging.** *Optical Microscopy: Emerging Methods and Applications*. By B Herman and JJ Lemasters (Editors). Academic Press, pp. 373-402, 1992. ISBN: 9780123420602

- B-37 Ferreira ST, Gratton E. **Enzyme activity in reverse micelles: roles of diffusion and extent of hydration.** *Biomolecules in Organic Solvents*. By A Gómez-Puyou (Editors). CRC Press, pp. 189-202, 1992. ISBN: 9780849348235
- B-38 Gratton E, Alcalá JR, Barbieri BB. **Frequency-domain fluorometry.** *Luminescence Techniques in Chemical and Biochemical Analysis* (Luminescence Spectroscopy, Vol. 12). By WRG Baeyens, D de Keukeleire, and K Korkidis (Editors). CRC Press, pp. 47-72, 1990. ISBN: 9780824783693
- B-39 Gratton E, vandeVen MJ **Laser sources for confocal microscopy.** *The Handbook of Biological Confocal Microscopy*. By JB Pawley (Editors). Springer-Verlag New York, pp. 47-59, 1989. ISBN: 0306448262
Gratton E, Silva N Jr, Ferreira ST. **Fluorescence of tryptophan and protein dynamics.** *Biological and Artificial Intelligence Systems*. By E Clementi and S Chin (Editors). ESCOM Science Publishers, Leiden, The Netherlands, pp. 49-55, 1988. ISBN: 9789072199027
- B-40 Careri G, Gratton E. **The statistical time correlation approach to enzyme action: the role of hydration.** *The Fluctuating Enzyme* (Nonequilibrium Problems in the Physical Sciences & Biology). By GR Welch (Editors). John Wiley & Sons, New York, pp. 227-262, 1986. ISBN: 9780471888703
- B-41 Frauenfelder H, Gratton E. *Biomembranes Part O: Protons and Water: Structure and Translocation* (Methods in Enzymology, Vol. 127). Academic Press, pp. 207-216, 1986. ISBN: 0121820270
- B-42 Gratton, E. and R. Lopez-Delgado. Remarks on a novel method for fluorescence lifetime measurements. *In Time Resolved Fluorescence Spectroscopy in Biochemistry and Biology* (R. B. Cundall and R. E. Dale, Eds.) NATO ASIS, Ser. A. Vol. 69A, Plenum Press, NY, pp. 109-114 (1983).
- B-43 Jameson, D. and E. Gratton. Analysis of heterogeneous emissions by multifrequency phase and modulation fluorometry. *In New Directions in Molecular Luminescence*. ASTM-STP 822 (D. Eastwood, Ed.) (American Society of Testing and Materials), pp. 67-81 (1983).
- B-44 Gratton, E., J. R. Alcalá and G. Marriotti. Rotational motions of tryptophan and tyrosine residues in proteins. *In Structure and Dynamics of Nucleic Acids, Proteins, and Membranes* (E. Clementi and S. Chin, Eds.) 149-151 (1986).
- B-45 Lentz, B. R., S. W. Burgess and E. Gratton. Concentration dependence of DPHpPC fluorescence lifetime: Photophysics and utility for monitoring membrane fusion. *In Molecular Mechanisms of Membrane Fusion* (S. Ohki, D. Doyle, T. D. Flanagan, S. W. Hue and E. Mayhew, Eds.) Plenum Pub. Corp. (1988).
- B-46 Gratton, E., J. R. Alcalá and F. G. Prendergast. Protein dynamics: Fluorescence lifetime distributions. *In Fluorescent Biomolecules*, pp. 17-32 (D. M. Jameson and G. Reinhart, Eds.) Plenum Press (1989).
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Invited talks

During the last year I counted about 20 talks in the US and international
