

## Luminita A. Vese

### Professor

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### EDUCATION

- Ph.D., University of Nice-Sophia Antipolis, France, 1997
- M.S., University of Nice-Sophia Antipolis, France, 1992
- B.S.-M.S., West University of Timisoara, Romania, 1992

### EMPLOYMENT

- Professor, UCLA, Department of Mathematics, 2008-present
- Associate Professor, UCLA, Department of Mathematics, 2004-2008
- Assistant Professor, UCLA, Department of Mathematics, 2002-04
- CAM Assistant (Adj.) Professor, UCLA, Department of Mathematics, 2000-02
- Visiting Assistant Professor/Researcher, UCLA, Department of Mathematics, 1998-00
- Temporary Assoc. for Teaching/Research (ATER), CEREMADE, University of Paris IX-Dauphine, France, 1997-98
- Visiting Assistant Professor/Researcher, UCLA, Department of Mathematics, 1997
- Temporary Assoc. for Teaching/Research (ATER), J.A. Dieudonné Lab, University of Nice-Sophia Antipolis, France, 1996-97

### CONSULTING ACTIVITIES

- Member, NSF Review panel, 2001, 2002
- NSF Reviewer, 2005, 2006 **GRANTS**
- NIH, Roadmap for medical research U54 RR021813, Center for Computational Biology, 2004-09 (Co-PI).
- NSF DMS 03-12222, New PDE Based Models and Num. Techniques in level set surface processing (Co-PI).
- NIH P20 MH65166 Computational Biology from Genotype to Phenotype (investigator).
- ONR N00014-02-1-0015, Nonlinear PDE models and methods for image processing (Co-PI).
- NSF CCF-0113439 ITR/AP, Variational-PDE models using level sets for computer vision (PI).
- NSF OCI 0224613 REU supplement, Variational PDE models using level sets for computer vision (PI).
- ONR N00014-96-1-0277 (investigator).
- NSF DMS-9626755 (investigator).
- NSF DMS-9973341 (investigator).

## HONORS AND AWARDS

- 2003 Alfred P. Sloan Research Fellowship.
- Plenary Speaker, SIAM Imaging Sciences, Minneapolis MN, May 2006.
- Paper "Active Contours Without Edges" (with T. Chan), received an IEEE Signal Processing Society Best Paper Award for 2003.
- Paper "An Active Contour Model without Edges" (with T. Chan) selected among best papers at Scale-Space Theories in Computer Vision, 2nd International Conference, Scale-Space'99, Corfu, Greece.
- Paper "A level set algorithm for minimizing the Mumford-Shah functional in image processing" (with T. Chan) selected among best papers at IEEE Workshop on Variational and Level Set Methods (VLSM'01).
- TEMPUS (Trans-European Mobility Programme for University Studies) Fellowship for graduate studies: 1991 - 1992 (10 months), 1992-1993 (6 months), 1993-1994 (6 months).
- IPAM Institute Fellow, Spring 2001, Fall 2004.
- IPAM Senior Institute Fellow, Spring 2007.

## RESEARCH INTERESTS

• Variational methods, geometric PDEs, image analysis, computer vision, level set methods, texture modeling, numerical analysis, curve and surface evolution, inverse problems, applied harmonic analysis.

## Ph.D. GRADUATES

- Triet M. Le, June 2006. Institution: Department of Mathematics, Yale University. Title: Gibbs Assistant Professor
- Linh H. Lieu, June 2006. Institution: Department of Mathematics, UC Davis. Title: Krener/VIGRE Assistant Professor.
- Ginmo Chung, June 2007. Institution: Department of Mathematics, Hokkaido University Title: Postdoctoral fellow.

## OTHER MENTORING ACTIVITIES

- Advised other graduate students in research projects: Tom Cecil, Nicolay Tanushev, Christopher Elion, Wei-Hsun Liao, Suzanne Nezzar, Jeremy Brandman.
- Faculty Mentor for IPAM RIPS Summer program for undergraduates, 2001, 2002, 2003, 2005.
- Faculty mentor, UCLA REU Summer programs, 2000, 2001, 2002.

## TEACHING EXPERIENCE

- Graduate level (Instructor, UCLA): Math 269A (numerical methods for ODE's), Math 269B (numerical methods for PDE's), Math 269C (numerical methods for the FEM), Math 270C (computational linear algebra), Math 285J (mathematical models in image analysis), Math 273 (Optimization).
- Undergraduate level (Instructor, UCLA): Math 155 (mathematical imaging), Math 164 (optimization), Math 151AB (numerical methods), Math 135AB (ODEs), Math 115A (linear algebra), Math 33 (infinite series).
- Undergraduate level (Instructor, University of Paris IX): linear algebra.
- Undergraduate level (Instructor, University of Nice): linear programming and game theory
- Undergraduate level (teaching assistant, University of Nice): calculus, optimization, statistics and proba-

bilities.

### **CONFERENCE ORGANIZER**

- Co-organizer, Minisymposium on “Variational and PDE Models for Image Decomposition”, SIAM Conference on Imaging Science, Minneapolis (May 15-17), 2006.
- Co-organizer, AMS Special Session on Multiscale and Oscillatory Phenomena: Modeling, Numerical Techniques and Applications, Joint Mathematics Meetings, Phoenix (Jan 7-10), 2004
- Co-Organizer of Minisymposium on ”Nonlinear PDE in image processing”, First SIAM Conference on Imaging Sciences, Boston (Mar 4-6), 2002
- Organizer of SIAM Special Session, ”Mathematical models for image analysis and computer vision”, Joint Mathematics Meetings, San Diego (Jan 6-9), 2002
- Chair, Contributed Session on Image and Signal Processing, SIAM 50th Anniversary and Annual Meeting, Philadelphia (July), 2002
- Co-Organizer and Chair, Minisymposium on ”PDE-based Image Processing”, 2000 SIAM Annual Meeting, Puerto Rico (July 9-14), 2000
- Chair, Session for Contributed Papers on Optimization, AMS Meeting: ”Mathematical Challenges of the 21st Century”, (Aug 6-12), 2000

### **COMMITTEE SERVICE IN PROFESSIONAL SOCIETIES**

- Chair, SIAM Imaging Sciences Activity Group, 2008, 2009
- Advisory Board Member, Institute for Digital Research and Engineering (IDRE), UCLA (2005-present)
- Member in program committee, The 5th International Conference on Scale Space and PDE Methods in Computer Vision, 2005.
- Member in program committee, 3rd IEEE Workshop on Variational, Geometric and Level Set Methods in Computer Vision, 2005.
- Member in Program Committee, 2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2005.
- Program Committee Member, European Conference in Computer Vision ECCV 2006.
- Program Committee Member, International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition EMMCVPR 2007.
- Program Committee Member, International Conference in Computer Vision ICCV 2007.

### **EDITORIAL ACTIVITIES**

- Editorial board member, Inverse Problems and Imaging Journal of the American Institute of Mathematical Sciences.
- Associate Editor, Communications in Mathematical Sciences, a journal of the International Press, 2006, 2007.
- Guest Editor, Journal of Mathematical Imaging and Vision, for Special Issue of MIA 2006.
- Top 10 reviewer for 2005, IEEE Transactions on Image Processing.
- Book and journal manuscript reviewer: Princeton University Press, IEEE Trans. on Image Proc., IEEE Trans. on PAMI, IEEE Signal Proc. Letters, SIAM J. on Math. Analysis, SIAM J. on MMS, Intrnl. J.

of Computer Vision, SIAM J. on Sci. computing, Applied Math. and Optimization, VLISM, ICCV, CVPR, TCAS, CVIU, IMAVIS SIAM Review, SIAM, Prentice Hall, Springer, MIT Press, Cambridge Univ. Press, Lecture Notes in Mathematics, Image and Vision Computing Journal, Journal of Visual Communication and Image Representation, Mathematical Methods in the Applied Sciences, IEEE Transactions on Signal Processing, JMAA, JMIV, Proc. of Int. Conf. on Advances in Pattern Recognition, Nonlinear Analysis-TMA, Journal of Computational Physics, SINUM, Computer Vision and Image Understanding, SIAM J. on Applied Mathematics, Contemporary Mathematics, JSC, Optical Engineering Letters, NIMG, among others.

### INVITED LECTURES AND PRESENTATIONS

- Plenary Speaker, SIAM Imaging Science Conference, May 15-17, 2006, Minneapolis.
- Seminar, AMS, JHU, November, 2006
- Seminar, AMS and CIS, JHU, February 2007
- AMCS Colloquium, Univ. Penn., April 2007
- Invited Presentations, Minisymposium Variational and PDE Models for Image Decomposition, 2006 SIAM Conference on Imaging Science, May 15-17, 2006, Minneapolis.
- Invited Presentation, Minisymposium on "Computational Aspects of Medical Imaging", SIAM conference on Computational Science and Engineering, February 21, 2007, Costa Mesa, CA.
- Invited Presentation, Special session on "Nonsmooth analysis in inverse and variational problems" at The Joint Mathematics Meetings, January 7, 2007, New Orleans, LA.
- Invited presentation, Session "Computational advances in evolving curves and surfaces" at The 7th World Congress on Computational Mechanics, July 17, 2006, Century City, CA.
- Invited Presentation, 2006 SIAM Imaging Science Minisymposium on "Mathematical Methods and Tools for Volumetric Brain Segmentation", May 16, 2006, Minnesota
- Invited Speaker, Mathematics and Image Analysis, MIA'06, Paris, 18-21 September , 2006
- Invited Minisymposium Presentation, Sieme Colloque Franco-Roumain de Mathématiques Appliquées, Chambéry, August 28 - September 1st, 2006
- Oral Presentation, SYNASC 2006, 8th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, Timisoara, Romania, September 26-29, 2006
- Oral Presentation, SPIE Electronic Imaging 2007, Computational Imaging V, San Jose, CA, January 2007.
- Invited Presentation, Workshop Image Processing for Random Shapes: Applications to Brain Mapping, Geophysics and Astrophysics May 21 - 23, 2007, IPAM, UCLA
- Invited presentation, Special Session on Interpolation Theory and Applications, AMS Spring Southeastern Meeting, Miami, FL, April 1-2, 2006
- Applied and Interdisciplinary Mathematics Seminar, Department of Mathematics, University of Michigan, Feb 10, 2006
- Institute Seminar, Institute for Scientific Computing and Applied Mathematics (ISC), Indiana University, Jan. 25, 2006
- Keynote speaker: SPIE Conference Computational Imaging IV, San Jose, CA, Jan 15-17, 2006
- Invited speaker, UC Davis, Applied Math Colloquium, Dec 2005
- Oral presentation, International workshop on Energy Minimization Methods in Computer Vision and Pat-

tern Recognition, Nov 9-11, 2005, St. Augustine, Florida

- Invited speaker, Introductory Workshop in Mathematical, Computational and Statistical Aspects of Image Analysis, MSRI, Berkeley, Jan 2005

- Invited lecture, UCLA Statistics Speaker Series 2005

- Invited Presentation, Special Session of Joint Mathematics Meetings, Atlanta, GA, Jan. 2005

- Invited Presentation, Special Session of AMS Fall Eastern Section Meeting, Pittsburgh, Nov. 2004

- Invited speaker, Workshop Contenu Informatif des Images Numeriques, Cachan, France, Nov. 2004

- Invited speaker, MGA Workshop I: Multiscale Geometry in Image Processing and Coding, IPAM, Sept. 2004.

- Invited lecture, Seminar in Applied Math at USC, Fall 2004

- Invited speaker, "Mathematical Image Analysis and Processing", Workshop, Banff, Canada, Oct. 2004.

- Invited presentation, minisymposium on "Inverse Problems and Material Science", Applied Inverse Problems: Theoretical and Computational Aspects, May 18-23, 2003.

- ACM Colloquium, CalTech, Apr 21, 2003

- Numerical Analysis Seminar, University of Maryland, Apr 15, 2003

- PACM Colloquium, Princeton University, Mar 3, 2003

- Applied Math Seminar, Stanford University, Apr 11, 2003

- CIS Seminar Series, JHU, Apr 16, 2003

- Invited talk, CSCAMM Summer Visitor Program, UMD, Jun 30, 2003

- Invited talk, Harvard University, DEAS, Apr 1, 2002

- Invited talk, MIT EECS/AI Lab, Apr 10, 2002

- Invited speaker, Thales, France, Sept. 2002

- Invited Speaker, 2nd Southern California Applied Mathematics Symposium (SoCAMS-II), IPAM, Los Angeles, May 4, 2002.

- Invited presentation, Minisymposium on "The Level Set Method and its Applications", SIAM 50th Anniversary Meeting, Jul 8-12, 2002

- SIAM Minisymposium on Mathematical Models for Image Analysis and Computer Vision, Joint Mathematics Meetings, San Diego, January, 6-9, 2002.

- Invited presentation, Minisymposium on "Medical Imaging and Registration", SIAM 50th Anniversary Meeting, Jul 8-12, 2002

- Invited speaker, Workshop on Foundations of Numerical PDE's, FoCM'02, IMA, Minneapolis, Aug 5-7, 2002

- Invited speaker, Mathematics and Image Analysis (MIA), Paris, Sept 10-13, 2002

- Invited speaker, LANL Workshop on Image Analysis and Understanding Data From Scientific Experiments, Dec 2-6, 2002

- Invited presentation, Minisymposium “Nonlinear PDE in Image Processing I”, First SIAM Conference on Imaging Sciences, Boston, March 4-6, 2002.
- Selected Speaker, Interphase 2001, 9th International Workshop on Numerical Methods for Free Boundary Problems, College Park, Maryland, January 9-12, 2002.
- Computational and Applied Mathematics Seminar, UC Irvine, Oct 29, 2001
- Invited Talk, Minisymposium, ”Recent Advances in numerical computations, application, and analysis for free boundary/moving interface problems”, SIAM Annual Meeting, San Diego, July 9-13, 2001
- IEEE Workshop on Variational and Level Set Methods in Computer Vision, Vancouver, Jul 13, 2001
- Oral Presentation, GBM - Culminating Retreat at Lake Arrowhead, June 11-15, 2001.
- Invited Speaker at the Abdus Salam International Centre for Theoretical Physics (ICTP), Conference at the School on Mathematical Problems in Image Processing, Trieste, Italy, September 4-22, 2000.
- Invited Speaker, ONR Workshop “Image Processing: Theory, Analysis and Applications”, September 6-8, 2000, IPAM, UCLA.
- Invited Speaker at the 34'th Annual Asilomar Conference on Signals, Systems, and Computers, Oct. 29 - Nov. 1, 2000, special session on “PDE's and Diffusion for Signal Processing”.
- Minisymposium presentation “PDE-based Image Processing”, 2000 SIAM Annual Meeting, July 9-14, Puerto-Rico.
- Oral Presentation, 2nd International Conference on Scale-Space Theories in Computer Vision, Corfu, Greece, September 1999.
- Invited Seminar, UCSB, Department of Mathematics, Nov. 17, 2000
- Invited seminar, UCLA, Department of Statistics, Nov. 7, 2000.
- IRIS USC Invited Lectures, January 21, 2000.
- Applied Mathematics Colloquium, May 1997, Jan 1999, Oct 2001.
- Nonlinear Analysis Seminar, CEREMADE, University of Paris IX, France, May 19, 1998.
- LAO Seminar, University of Toulouse III, France, April 10, 1997.
- LACO, Non-linear Analysis and Optimization Seminar, University of Limoges, France, March 14, 1997.
- P.D.E.'s and Numerical Analysis Seminars, J.A. Dieudonné Lab, University of Nice-Sophia Antipolis, France, October 17, 1996.
- Vision Seminar, University of Nice-Sophia Antipolis, France, March 1996.

### Publications of Luminita A. Vese

1. G. Aubert, L. Vese, *A variational method in image recovery*. SIAM J. of Numerical Analysis, **34(5)**, 1997, 1948-1979, RESEARCH ARTICLE.
2. L. Vese, *A method to convexify functions via curve evolution*. Communications in Partial Differential Equations, **24**, 1999, 1573-1591, RESEARCH ARTICLE.
3. T. Chan, L. Vese, *An active contour model without edges*. in "Scale-Space Theories in Computer Vision", Springer-Verlag Lecture Notes in Computer Science, No. 1682, M. Nielsen, P. Johansen, O.F. Olsen and J. Weickert, eds., Proceedings of the Second International Conference, Scale-Space '99, **1682**, 1999, 141-151, RESEARCH ARTICLE.
4. P. Blomgren, T. Chan, P. Mulet, L. Vese, W.L. Wan, *Variational PDE Models & Methods for Image Processing*. (former WIP 2 has been incorporated into this paper), in "Numerical Analysis 1999", D.F. Griffiths and G.A. Watson, eds., Proceedings of the 19th Biennial Conference on Numerical Analysis, CRC Press, 1999, 36-57, INVITED EXPOSITORY ARTICLE.
5. T. Chan, L. Vese, *Active contours without edges*. IEEE Transactions on Image Processing, **10(2)**, 2001, 266-277, RESEARCH ARTICLE.
6. T. Chan, B. Sandberg, L. Vese, *Active contours without edges for vector-valued images*. in "Journal of Visual Communication and Image Representation", Special Issue on the Second International Conference on Scale Space Theories in Computer Vision, **11(2)**, 2000, 130-141, RESEARCH ARTICLE.
7. T. Chan, L. Vese, *An Efficient Variational Multiphase Motion for the Mumford-Shah Segmentation Model*. Proc. of the 34th Asilomar Conference on Signals, Systems, and Computers, **1**, 2000, 490-494, INVITED PAPER.
8. T. Chan, L. Vese, *A level set algorithm for minimizing the Mumford-Shah functional in image processing*. IEEE/Computer Society Proceedings of the 1st IEEE Workshop on 'Variational and Level Set Methods in Computer Vision', 2001, 161-168, RESEARCH ARTICLE.
9. L. Vese, T. Chan, *A multiphase level set framework for image segmentation using the Mumford and Shah model*. Special Issue on "Variational and Level Set Methods in Computer Vision" in the Int. Journal of Computer Vision, **50(3)**, 2002, 271-293, RESEARCH ARTICLE.
10. T. Chan, L. Vese, *Active Contour and Segmentation Models using Geometric PDE's for Medical Imaging*. in "Geometric Methods in Bio-Medical Image Processing", R. Malladi, ed., Series: Mathematics and Visualization, Springer, 2002, 63-75, INVITED RESEARCH ARTICLE.
11. L. Vese, *A study in the BV space of a denoising-deblurring variational problem*. Applied Mathematics & Optimization, **44(2)**, 2001, 131-161, RESEARCH ARTICLE.
12. W.H. Liao, L. Kashida, L. Vese, M. Bergsneider, S.C. Huang, *A variational approach for noise removal of parametric images in tracer kinetic modelling*. Neuroimage, **16(3)**, 2002, S68-S69, RESEARCH ARTICLE.
13. L.A. Vese, S.J. Osher, *Numerical methods for p-harmonic flows and applications to image processing*. SIAM Journal of Numerical Analysis, **40(6)**, 2003, 2085-2104, RESEARCH ARTICLE.
14. T.F. Chan, J. Shen, L. Vese, *Variational PDE Models in Image Processing*. Notices of the American Mathematical Society, **50(1)**, 2003, 14-26, INVITED EXPOSITORY ARTICLE.
15. L. Vese, *Multiphase Object Detection and Image Segmentation*. in "Geometric Level Set Methods in Imaging, Vision, and Graphics", S. Osher and N. Paragios (eds), Springer Verlag, 2003, 175-194, INVITED RESEARCH ARTICLE.
16. L. Vese, S. Osher, *Modeling Textures with Total Variation Minimization and Oscillating Patterns in Image Processing*. Journal of Scientific Computing, **19**, 2003, 553-572, RESEARCH ARTICLE.

17. M. Bertalmio, L. Vese, G. Sapiro, S. Osher, *Simultaneous structure and texture image inpainting*. IEEE Transactions on Image Processing, **12(8)**, 2003, 882-889, RESEARCH ARTICLE.
18. S. Osher, A. Solé, L. Vese, *Image Decomposition and Restoration Using Total Variation Minimization and the  $H^{-1}$  norm*. Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, **1(3)**, 2003, 349-370, RESEARCH ARTICLE.
19. M. Bertalmio, L. Vese, G. Sapiro, S. Osher, *Simultaneous structure and texture image inpainting*. Proceedings of the “2003 IEEE Computer Society Conference on Computer Vision and Pattern Recognition”, **2**, 2003, 707-712, RESEARCH ARTICLE.
20. P. Favaro, S. Osher, S. Soatto, L. Vese, *3D Shape from anisotropic diffusion*. Proceedings of the “2003 IEEE Computer Society Conference on Computer Vision and Pattern Recognition”, **1**, 2003, 179-186, RESEARCH ARTICLE.
21. M. Bertalmio, L. Vese, G. Sapiro, S. Osher, *Image Filling-In in a Decomposition Space (MP-P3)*. Proceedings of the 2003 International Conference on Image Processing, 2003, RESEARCH ARTICLE.
22. W.-H. Liao, H. Protas, M. Bergsneider, L. Vese, S.-H. Huang, S. Osher, *A New Framework for Object Warping: a Semi-Lagrangian Level Set Approach (WP-L2)*. Proceedings of the 2003 International Conference on Image Processing, 2003, RESEARCH ARTICLE.
23. S. Osher, A. Solé, L. Vese, *Image Decomposition, Image Restoration, and Texture Modeling Using Total Variation Minimization and the  $H^{-1}$  Norm (MP-L3)*. Proceedings of the 2003 International Conference on Image Processing, 2003, RESEARCH ARTICLE.
24. T. Chan, S. Osher, L. Vese, *The Imagers Group at UCLA*. ECMI Newsletter, **34**, 2003, INVITED EXPOSITORY ARTICLE.
25. W.-H. Liao, C.-L. Yu, M. Bergsneider, L. Vese, S.-C. Huang, *A new framework of quantifying differences between images by matching gradient fields and its application to image blending*. Nuclear Science Symposium Conference Record, 2002 IEEE, **2**, 2002, 1092-1096, RESEARCH ARTICLE.
26. L. Vese, S. Osher, *Image denoising and decomposition with total variation minimization and oscillatory functions*. Special Issue of J. of Mathematical Imaging and Vision, **20**, 2004, 7-18, RESEARCH ARTICLE.
27. A. Leow, M.-C. Chiang, H. Protas, P. Thompson, L. Vese, H.S.C. Huang, *Linear and non-linear geometric object matching with implicit representation*. Proceedings of the 17th Intrnl. Conference on Pattern Recognition, **3**, 2004, 710-713, RESEARCH ARTICLE.
28. T. Cecil, S. Osher, L. Vese, *Numerical methods for minimization problems constrained to  $S - 1$  and  $S - 2$* . J. of Computational Physics, **198**, 2004, 567-579, RESEARCH ARTICLE.
29. T. Le, L. Vese, *Image decomposition using total variation and  $div(BMO)$* . Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, **4**, 2005, 390-423, RESEARCH ARTICLE.
30. C. Gout, C. Le Guyader, L. Vese, *Segmentation under geometrical conditions using geodesic active contours and interpolation using level set methods*. Numerical Algorithms, **39**, 2005, 155-173, RESEARCH ARTICLE.
31. E. Tadmor, S. Nezzar, L. Vese, *A multiscale image representation using hierarchical  $(BV, L^2)$  decompositions*. Multiscale modeling and simulation: A SIAM Interdisciplinary Journal, **2**, 2004, 554-579, RESEARCH ARTICLE.
32. G. Chung, L. Vese, *Energy minimization based segmentation and denoising using a multilayer level set approach*. A. Rangarajan et al. (Eds): EMMCVPR, 2005, LNCS 3757, 2005, 439-455, RESEARCH ARTICLE.



33. W.-H. Liao, L. Vese, S.-C. Huang, M. Bergsneider, S. Osher, *Computational anatomy and implicit object representation: A level set approach*. Lecture Notes in Computer Science, **2717**, 2003, 40-49, RESEARCH ARTICLE.
34. G. Chung, T.M. Le, L.H. Lieu, N.M. Tanushev and L.A. Vese, *Computational methods for image restoration, image segmentation, and texture modeling*, in Computational Imaging IV, edited by Charles A. Bouman, Eric L. Miller, Ilya Pollak, Proc. of SPIE-IS&T Electronic Imaging, SPIE Vol. 6065, pp. 60650J-1 – 60650J-15, 2006, INVITED RESEARCH ARTICLE.
35. B.-W. Hong, E. Prados, S. Soatto, and L. Vese, *Shape Representation Based on Integral Kernels: Application to Image Matching and Segmentation*, 2006 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 17-22 June 2006, Volume 1, pp: 833 - 840, 2006, RESEARCH ARTICLE.
36. L.A. Vese and S.J. Osher, *Color texture modeling and color image decomposition in a variational-PDE approach*, Proceedings of Eighth International Symposium Symbolic and Numeric Algorithms for Scientific Computing, SYNASC '06, 26-29 Sept. 2006, pp: 103 - 110, 2006, RESEARCH ARTICLE.
37. I. Daubechies, G. Teschke, Luminita Vese, *Iteratively solving linear inverse problems under general convex constraints*, Inverse Problems and Imaging, Volume 1, Number 1, 2007, 29-46, RESEARCH ARTICLE.
38. N.M. Tanushev and L.A. Vese, *A piecewise-constant binary model for electrical impedance tomography*, Inverse Problems and Imaging, Volume 1, Number 2, 2007, 423 - 435, RESEARCH ARTICLE.
39. J.B. Garnett, T.M. Le, Y. Meyer, and L.A. Vese, *Image decompositions using bounded variation and generalized homogeneous Besov spaces*, Appl. Comput. Harmon. Anal. **23**, 2007, 25-56, RESEARCH ARTICLE.
40. C. Elion and L.A. Vese, *An image decomposition model using the total variation and the infinity Laplacian*, Proceedings of Electronic Imaging 2007, Computational Imaging V (C.A. Bouman, E.L. Miller, I. Pollak, Editors), Vol. 6498, 2007, pp. 64980W-1 to 64980W-10, RESEARCH ARTICLE.
41. I. Yanovsky, P. Thompson, S. Osher, L. Vese, A. Leow, *Multiphase Segmentation of Deformation using Logarithmic Priors*, IEEE Computer Society Workshop on Image Registration and Fusion, 2007, RESEARCH ARTICLE.
42. T.M. Le and L.A. Vese, *Additive and multiplicative piecewise-smooth segmentation models in a functional minimization approach*, Contemporary Mathematics (in press), RESEARCH ARTICLE.
43. L.H. Lieu and L.A. Vese, *Image Restoration and Decomposition via Bounded Total Variation and Negative Hilbert-Sobolev Spaces*, Applied Mathematics and Optimization (in press), RESEARCH ARTICLE.

#### Technical Reports of Luminita A. Vese

1. L. Vese, T. Chan, *Reduced Non-Convex Functional Approximations for Image Restoration and Segmentation*, UCLA CAM Report 97-56.
2. B. Sandberg, T. Chan, L. Vese, *A Level-Set and Gabor-Based Active Contour Algorithm for Segmenting Textured Images*. UCLA CAM Report #02-39.
3. W.-H. Liao, A. Khuu, M. Bergsneider, L. Vese, S.-C. Huang, S. Osher, *From Landmark Matching to Shape and Open Curve Matching: A Level Set Approach*. UCLA CAM Report #02-59.
4. T.M. Le, L. Lieu, L. Vese, *BV and dual of BV image decomposition models and minimization algorithms*. UCLA CAM Report 05-13 (submitted).
5. B.-W. Hong, S. Soatto, and L.A. Vese, *Enforcing Local Context into Shape Statistics*, January 2007.

6. C. Le Guyader and L. Vese, *Self-repelling snakes for topology-preserving segmentation models*, January 2007.
7. J.B. Garnett, P.W. Jones, T.M. Le, and L.A. Vese, *Modeling oscillatory components with the homogeneous spaces  $BMO^{-\alpha}$  and  $\dot{W}^{-\alpha,p}$* , June 2007.
8. G. Chung, I. Dinov, A. Toga, and L. Vese, *MRI Tissue Segmentation Using a Variational Multilayer Approach*, June 2007.
9. E. Tadmor, S. Nezzar, and L.A. Vese, *Generalizations of the hierarchical decomposition of images to deblurring, denoising and segmentation*, July 2007.