




## Emmanuel Candès

Barnum-Simons Chair in Math and Statistics, and Professor of Statistics and, by courtesy, of Electrical Engineering

Mathematics

 Curriculum Vitae available Online

### CONTACT INFORMATION

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### Bio

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#### BIO

Emmanuel Candès is the Barnum-Simons Chair in Mathematics and Statistics, a professor of electrical engineering (by courtesy) and a member of the Institute of Computational and Mathematical Engineering at Stanford University. Earlier, Candès was the Ronald and Maxine Linde Professor of Applied and Computational Mathematics at the California Institute of Technology. His research interests are in computational harmonic analysis, statistics, information theory, signal processing and mathematical optimization with applications to the imaging sciences, scientific computing and inverse problems. He received his Ph.D. in statistics from Stanford University in 1998.

Candès has received several awards including the Alan T. Waterman Award from NSF, which is the highest honor bestowed by the National Science Foundation, and which recognizes the achievements of early-career scientists. He has given over 60 plenary lectures at major international conferences, not only in mathematics and statistics but in many other areas as well including biomedical imaging and solid-state physics. He was elected to the National Academy of Sciences and to the American Academy of Arts and Sciences in 2014.

#### ACADEMIC APPOINTMENTS

- Professor, Mathematics
- Professor, Statistics
- Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Member, Institute for Computational and Mathematical Engineering (ICME)

#### ADMINISTRATIVE APPOINTMENTS

- Chair, Department of Statistics, Stanford University, (2015-2018)

#### HONORS AND AWARDS

- Fellow, IEEE (2018)
- Fellow, American Mathematical Society (AMS) (2018)

- Fellow, Society for Industrial and Applied Mathematics (SIAM) (2017)
- MacArthur Fellow, MacArthur Foundation (2017)
- Ralph E. Kleinman Prize, Society for Industrial and Applied Mathematics (SIAM) (2017)
- Wald Memorial Lectures, Institute of Mathematical Statistics (2017)
- Prix Pierre Simon de Laplace, Société Française de Statistique (2016)
- Beal-Orchard-Hays Prize, Mathematical Optimization Society (2015)
- George David Birkhoff Prize, American Mathematical Society (AMS) & Society for Industrial and Applied Mathematics (SIAM) (2015)
- Fellow, American Academy of Arts and Sciences (2014)
- Invited Plenary Address at ICM 2014, International Mathematical Union (2014)
- Member, National Academy of Sciences (2014)
- Outstanding Paper Prize, Society for Industrial and Applied Mathematics (SIAM) (2014)
- Prix Jean Kuntzmann, Laboratoire Jean Kuntzmann and PERSYVAL-lab (2014)
- Dannie Heineman Prize, Academy of Sciences at Göttingen (2013)
- Lagrange Prize in Continuous Optimization, Mathematical Optimization Society (MOS) and Society of Industrial and Applied Mathematics (SIAM) (2012)
- Collatz Prize, International Council for Industrial and Applied Mathematics (ICIAM) (2011)
- Simons Chair, Math + X, Simons Foundation (2011)
- George Pólya Prize, Society of Industrial and Applied Mathematics (SIAM) (2010)
- Information Theory Society Paper Award, Information Theory Society (2008)
- Alan T. Waterman Medal, National Science Foundation (2006)
- James H. Wilkinson Prize in Numerical Analysis and Scientific Computing, Society of Industrial and Applied Mathematics (SIAM) (2005)
- Best Paper Award, European Association for Signal, Speech and Image Processing (2003)
- Young Investigator Award, Department of Energy (2002)
- Sloan Research Fellow, Alfred P. Sloan Foundation (2001-2003)
- Third Popov Prize in Approximation Theory, Popov Foundation (2001)
- National Scholarship, Ecole Polytechnique (1990)

## PROFESSIONAL EDUCATION

- PhD, Stanford University , Statistics (1998)
- Diplome Ingenieur, Ecole Polytechnique (1993)

## LINKS

- <http://statweb.stanford.edu/~candes/>: <http://statweb.stanford.edu/~candes/>

## Teaching

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### COURSES

#### 2020-21

- Applied Fourier Analysis and Elements of Modern Signal Processing: MATH 262 (Win)
- Theory of Statistics III: STATS 300C (Spr)

#### 2019-20

- Applied Matrix Theory: MATH 104 (Aut)

- Modern Markov Chains: STATS 318 (Spr)

#### 2017-18

- PhD First Year Student Workshop: STATS 303 (Aut, Win, Spr, Sum)
- Theory of Statistics III: STATS 300C (Spr)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Maxime Cauchois, Michael Celentano, Suyash Gupta, Nima Hamidi, Nikolaos Ignatiadis, Jaime Roquero Gimenez

#### Postdoctoral Faculty Sponsor

Lihua Lei, Haoyang Liu, Yaniv Romano

#### Doctoral Dissertation Advisor (AC)

Qijia Jiang, Shuangning Li, Zhimei Ren, Qian Zhao

#### Postdoctoral Research Mentor

Yaniv Romano

## Publications

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### PUBLICATIONS

- **ROBUST INFERENCE WITH KNOCKOFFS** *ANNALS OF STATISTICS*  
Barber, R., Candes, E. J., Samworth, R. J.  
2020; 48 (3): 1409–31
- **Discussion of the Paper "Prediction, Estimation, and Attribution" by B. Efron** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Candes, E., Sabatti, C.  
2020; 115 (530): 656–58
- **Metropolized Knockoff Sampling** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Bates, S., Candes, E., Janson, L., Wang, W.  
2020
- **THE PHASE TRANSITION FOR THE EXISTENCE OF THE MAXIMUM LIKELIHOOD ESTIMATE IN HIGH-DIMENSIONAL LOGISTIC REGRESSION** *ANNALS OF STATISTICS*  
Candes, E. J., Sur, P.  
2020; 48 (1): 27–42
- **Multi-resolution localization of causal variants across the genome.** *Nature communications*  
Sesia, M., Katsevich, E., Bates, S., Candès, E., Sabatti, C.  
2020; 11 (1): 1093
- **Publisher Correction: Multi-resolution localization of causal variants across the genome.** *Nature communications*  
Sesia, M., Katsevich, E., Bates, S., Candès, E., Sabatti, C.  
2020; 11 (1): 1799
- **Causal inference in genetic trio studies.** *Proceedings of the National Academy of Sciences of the United States of America*  
Bates, S., Sesia, M., Sabatti, C., Candès, E.  
2020
- **Deep Knockoffs** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Romano, Y., Sesia, M., Candes, E.  
2019

- **The likelihood ratio test in high-dimensional logistic regression is asymptotically a rescaled Chi-square** *PROBABILITY THEORY AND RELATED FIELDS*  
Sur, P., Chen, Y., Candes, E. J.  
2019; 175 (1-2): 487–558
- **A KNOCKOFF FILTER FOR HIGH-DIMENSIONAL SELECTIVE INFERENCE** *ANNALS OF STATISTICS*  
Barber, R., Candes, E. J.  
2019; 47 (5): 2504–37
- **Holographic phase retrieval and reference design** *INVERSE PROBLEMS*  
Barmherzig, D. A., Sun, J., Li, P., Lane, T. J., Candes, E. J.  
2019; 35 (9)
- **SLOPE-ADAPTIVE VARIABLE SELECTION VIA CONVEX OPTIMIZATION.** *The annals of applied statistics*  
Bogdan, M., van den Berg, E., Sabatti, C., Su, W., Candès, E. J.  
; 9 (3): 1103–40
- **A modern maximum-likelihood theory for high-dimensional logistic regression.** *Proceedings of the National Academy of Sciences of the United States of America*  
Sur, P., Candes, E. J.  
2019
- **On the construction of knockoffs in case-control studies** *STAT*  
Barber, R., Candes, E.  
2019; 8 (1)
- **Dual-Reference Design for Holographic Phase Retrieval**  
Barmherzig, D. A., Sun, J., Candes, E. J., Lane, T. J., Li, P., IEEE  
IEEE.2019
- **Conformalized Quantile Regression**  
Romano, Y., Patterson, E., Candes, E. J., Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **Conformal Prediction Under Covariate Shift**  
Tibshirani, R. J., Barber, R., Candes, E. J., Ramdas, A., Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **The Projected Power Method: An Efficient Algorithm for Joint Alignment from Pairwise Differences** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Chen, Y., Candes, E. J.  
2018; 71 (8): 1648–1714
- **Panning for gold: "model-X" knockoffs for high dimensional controlled variable selection** *JOURNAL OF THE ROYAL STATISTICAL SOCIETY SERIES B- STATISTICAL METHODOLOGY*  
Candes, E., Fan, Y., Janson, L., Lv, J.  
2018; 80 (3): 551–77
- **FALSE DISCOVERIES OCCUR EARLY ON THE LASSO PATH** *ANNALS OF STATISTICS*  
Su, W., Bogdan, M., Candes, E.  
2017; 45 (5): 2133–50
- **EigenPrism: inference for high dimensional signal-to-noise ratios** *JOURNAL OF THE ROYAL STATISTICAL SOCIETY SERIES B-STATISTICAL METHODOLOGY*  
Janson, L., Barber, R., Candes, E.  
2017; 79 (4): 1037–65
- **Solving Random Quadratic Systems of Equations Is Nearly as Easy as Solving Linear Systems** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Chen, Y., Candes, E. J.  
2017; 70 (5): 822-883

- **Controlling the Rate of GWAS False Discoveries** *GENETICS*  
Brzyski, D., Peterson, C. B., Sobczyk, P., Candès, E. J., Bogdan, M., Sabatti, C.  
2017; 205 (1): 61-75
- **Controlling the Rate of GWAS False Discoveries.** *Genetics*  
Brzyski, D., Peterson, C. B., Sobczyk, P., Candès, E. J., Bogdan, M., Sabatti, C.  
2017; 205 (1): 61-75
- **SLOPE IS ADAPTIVE TO UNKNOWN SPARSITY AND ASYMPTOTICALLY MINIMAX** *ANNALS OF STATISTICS*  
Su, W., Candès, E.  
2016; 44 (3): 1038-1068
- **Super-Resolution of Positive Sources: The Discrete Setup** *SIAM JOURNAL ON IMAGING SCIENCES*  
Morgenshtern, V. I., Candès, E. J.  
2016; 9 (1): 412-444
- **A Differential Equation for Modeling Nesterov's Accelerated Gradient Method: Theory and Insights** *JOURNAL OF MACHINE LEARNING RESEARCH*  
Su, W., Boyd, S., Candès, E. J.  
2016; 17
- **CONTROLLING THE FALSE DISCOVERY RATE VIA KNOCKOFFS** *ANNALS OF STATISTICS*  
Barber, R. F., Candès, E. J.  
2015; 43 (5): 2055-2085
- **Phase retrieval from coded diffraction patterns** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candès, E. J., Li, X., Soltanolkotabi, M.  
2015; 39 (2): 277-299
- **SLOPE-ADAPTIVE VARIABLE SELECTION VIA CONVEX OPTIMIZATION** *ANNALS OF APPLIED STATISTICS*  
Bogdan, M., Van Den Berg, E., Sabatti, C., Su, W., Candès, E. J.  
2015; 9 (3): 1103-1140
- **Adaptive Restart for Accelerated Gradient Schemes** *FOUNDATIONS OF COMPUTATIONAL MATHEMATICS*  
O'Donoghue, B., Candès, E.  
2015; 15 (3): 715-732
- **Randomized Algorithms for Low-Rank Matrix Factorizations: Sharp Performance Bounds** *ALGORITHMICA*  
Witten, R., Candès, E.  
2015; 72 (1): 264-281
- **Phase Retrieval via Wirtinger Flow: Theory and Algorithms** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candès, E. J., Li, X., Soltanolkotabi, M.  
2015; 61 (4): 1985-2007
- **Low-Rank Plus Sparse Matrix Decomposition for Accelerated Dynamic MRI with Separation of Background and Dynamic Components** *MAGNETIC RESONANCE IN MEDICINE*  
Otazo, R., Candès, E., Sodickson, D. K.  
2015; 73 (3): 1125-1136
- **Phase Retrieval via Matrix Completion** *SIAM REVIEW*  
Candès, E. J., Eldar, Y. C., Strohmer, T., Voroninski, V.  
2015; 57 (2): 225-251
- **Solving Quadratic Equations via PhaseLift When There Are About as Many Equations as Unknowns** *FOUNDATIONS OF COMPUTATIONAL MATHEMATICS*  
Candès, E. J., Li, X.  
2014; 14 (5): 1017-1026
- **Towards a Mathematical Theory of Super- resolution** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Candès, E. J., Fernandez-Granda, C.

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2014; 67 (6): 906-956

- **ROBUST SUBSPACE CLUSTERING** *ANNALS OF STATISTICS*  
Soltanolkotabi, M., Elhamifar, E., Candes, E. J.  
2014; 42 (2): 669-699
- **Super-Resolution from Noisy Data** *JOURNAL OF FOURIER ANALYSIS AND APPLICATIONS*  
Candes, E. J., Fernandez-Granda, C.  
2013; 19 (6): 1229-1254
- **Unbiased Risk Estimates for Singular Value Thresholding and Spectral Estimators** *IEEE TRANSACTIONS ON SIGNAL PROCESSING*  
Candes, E. J., Sing-Long, C. A., Trzasko, J. D.  
2013; 61 (19): 4643-4657
- **Simple bounds for recovering low-complexity models** *MATHEMATICAL PROGRAMMING*  
Candes, E., Recht, B.  
2013; 141 (1-2): 577-589
- **PhaseLift: Exact and Stable Signal Recovery from Magnitude Measurements via Convex Programming** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Candes, E. J., Strohmer, T., Voroninski, V.  
2013; 66 (8): 1241-1274
- **Single-photon sampling architecture for solid-state imaging sensors** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Van Den Berg, E., Candes, E., Chinn, G., Levin, C., Olcott, P. D., Sing-Long, C.  
2013; 110 (30): E2752-E2761
- **Improving IMRT delivery efficiency with reweighted L1-minimization for inverse planning** *MEDICAL PHYSICS*  
Kim, H., Becker, S., Lee, R., Lee, S., Shin, S., Candes, E., Xing, L., Li, R.  
2013; 40 (7)
- **How well can we estimate a sparse vector?** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candes, E. J., Davenport, M. A.  
2013; 34 (2): 317-323
- **On the Fundamental Limits of Adaptive Sensing** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Arias-Castro, E., Candes, E. J., Davenport, M. A.  
2013; 59 (1): 472-481
- **Super-resolution via Transform-invariant Group-sparse Regularization** *IEEE International Conference on Computer Vision (ICCV)*  
Fernandez-Granda, C., Candes, E. J.  
IEEE.2013: 3336-3343
- **Phase Retrieval via Matrix Completion** *SIAM JOURNAL ON IMAGING SCIENCES*  
Candes, E. J., Eldar, Y. C., Strohmer, T., Voroninski, V.  
2013; 6 (1): 199-225
- **A Nonuniform Sampler for Wideband Spectrally-Sparse Environments** *IEEE JOURNAL ON EMERGING AND SELECTED TOPICS IN CIRCUITS AND SYSTEMS*  
Wakin, M., Becker, S., Nakamura, E., Grant, M., Sovero, E., Ching, D., Yoo, J., Romberg, J., Emami-Neyestanak, A., Candes, E.  
2012; 2 (3): 516-529
- **A Compressed Sensing Parameter Extraction Platform for Radar Pulse Signal Acquisition** *IEEE JOURNAL ON EMERGING AND SELECTED TOPICS IN CIRCUITS AND SYSTEMS*  
Yoo, J., Turnes, C., Nakamura, E. B., Le, C. K., Becker, S., Sovero, E. A., Wakin, M. B., Grant, M. C., Romberg, J., Emami-Neyestanak, A., Candes, E.  
2012; 2 (3): 626-638
- **DISCUSSION: LATENT VARIABLE GRAPHICAL MODEL SELECTION VIA CONVEX OPTIMIZATION** *ANNALS OF STATISTICS*  
Candes, E. J., Soltanolkotabi, M.  
2012; 40 (4): 1997-2004

- **A GEOMETRIC ANALYSIS OF SUBSPACE CLUSTERING WITH OUTLIERS** *ANNALS OF STATISTICS*  
Soltanolkotabi, M., Candes, E. J.  
2012; 40 (4): 2195-2238
- **Dose optimization with first-order total-variation minimization for dense angularly sampled and sparse intensity modulated radiation therapy (DASSIM-RT)** *MEDICAL PHYSICS*  
Kim, H., Li, R., Lee, R., Goldstein, T., Boyd, S., Candes, E., Xing, L.  
2012; 39 (7): 4316-4327
- **Compressive fluorescence microscopy for biological and hyperspectral imaging** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Studer, V., Bobin, J., Chahid, M., Mousavi, H. S., Candes, E., Dahan, M.  
2012; 109 (26): E1679-E1687
- **Exact Matrix Completion via Convex Optimization** *COMMUNICATIONS OF THE ACM*  
Candes, E., Recht, B.  
2012; 55 (6): 111-119
- **A Probabilistic and RIPless Theory of Compressed Sensing** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Plan, Y.  
2011; 57 (11): 7235-7254
- **GLOBAL TESTING UNDER SPARSE ALTERNATIVES: ANOVA, MULTIPLE COMPARISONS AND THE HIGHER CRITICISM** *ANNALS OF STATISTICS*  
Arias-Castro, E., Candes, E. J., Plan, Y.  
2011; 39 (5): 2533-2556
- **Compressed sensing with coherent and redundant dictionaries** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candes, E. J., Eldar, Y. C., Needell, D., Randall, P.  
2011; 31 (1): 59-73
- **Robust Principal Component Analysis?** *JOURNAL OF THE ACM*  
Candes, E. J., Li, X., Ma, Y., Wright, J.  
2011; 58 (3)
- **Tight Oracle Inequalities for Low-Rank Matrix Recovery From a Minimal Number of Noisy Random Measurements** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Plan, Y.  
2011; 57 (4): 2342-2359
- **DETECTION OF AN ANOMALOUS CLUSTER IN A NETWORK** *ANNALS OF STATISTICS*  
Arias-Castro, E., Candes, E. J., Durand, A.  
2011; 39 (1): 278-304
- **NESTA: A Fast and Accurate First-Order Method for Sparse Recovery** *SIAM JOURNAL ON IMAGING SCIENCES*  
Becker, S., Bobin, J., Candes, E. J.  
2011; 4 (1): 1-39
- **Matrix Completion With Noise** *PROCEEDINGS OF THE IEEE*  
Candes, E. J., Plan, Y.  
2010; 98 (6): 925-936
- **The Power of Convex Relaxation: Near-Optimal Matrix Completion** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Tao, T.  
2010; 56 (5): 2053-2080
- **Compressed Sensing With Quantized Measurements** *IEEE SIGNAL PROCESSING LETTERS*  
Zymnis, A., Boyd, S., Candes, E.  
2010; 17 (2): 149-152

- **The power of convex relaxation: the surprising stories of matrix completion and compressed sensing** *21st Annual ACM/SIAM Symposium on Discrete Algorithms*  
Candes, E. J.  
SIAM.2010: 1321–1321
- **A SINGULAR VALUE THRESHOLDING ALGORITHM FOR MATRIX COMPLETION** *SIAM JOURNAL ON OPTIMIZATION*  
Cai, J., Candes, E. J., Shen, Z.  
2010; 20 (4): 1956-1982
- **Exact Matrix Completion via Convex Optimization** *FOUNDATIONS OF COMPUTATIONAL MATHEMATICS*  
Candes, E. J., Recht, B.  
2009; 9 (6): 717-772
- **NEAR-IDEAL MODEL SELECTION BY  $l_1$  MINIMIZATION** *ANNALS OF STATISTICS*  
Candes, E. J., Plan, Y.  
2009; 37 (5A): 2145-2177
- **Accurate low-rank matrix recovery from a small number of linear measurements** *47th Annual Allerton Conference on Communication, Control, and Computing*  
Candes, E. J., Plan, Y.  
IEEE.2009: 1223–1230
- **A FAST BUTTERFLY ALGORITHM FOR THE COMPUTATION OF FOURIER INTEGRAL OPERATORS** *MULTISCALE MODELING & SIMULATION*  
Candes, E., Demanet, L., Ying, L.  
2009; 7 (4): 1727-1750
- **Enhancing Sparsity by Reweighted  $l_1$  Minimization** *4th IEEE International Symposium on Biomedical Imaging*  
Candes, E. J., Wakin, M. B., Boyd, S. P.  
SPRINGER.2008: 877–905
- **Gravitational wave detection using multiscale chirplets** *CLASSICAL AND QUANTUM GRAVITY*  
Candes, E. J., Charlton, P. R., Helgason, H.  
2008; 25 (18)
- **Searching for a trail of evidence in a maze** *ANNALS OF STATISTICS*  
Arias-Castro, E., Candes, E. J., Helgason, H., Zeitouni, O.  
2008; 36 (4): 1726-1757
- **Highly robust error correction by convex programming** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Randall, P. A.  
2008; 54 (7): 2829-2840
- **An introduction to compressive sampling** *IEEE SIGNAL PROCESSING MAGAZINE*  
Candes, E. J., Wakin, M. B.  
2008; 25 (2): 21-30
- **Exact Low-rank Matrix Completion via Convex Optimization** *2008 46TH ANNUAL ALLERTON CONFERENCE ON COMMUNICATION, CONTROL, AND COMPUTING, VOLS 1-3*  
Candes, E. J., Recht, B.  
2008: 806-812
- **Compressed Sensing and Robust Recovery of Low Rank Matrices** *2008 42ND ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS AND COMPUTERS, VOLS 1-4*  
Fazel, M., Candes, E., Recht, B., Parrilo, P.  
2008: 1043-?
- **Detecting highly oscillatory signals by chirplet path pursuit** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candes, E. J., Charlton, P. R., Helgason, H.  
2008; 24 (1): 14-40



- **The Dantzig selector: Statistical estimation when  $p$  is much larger than  $n$**  *ANNALS OF STATISTICS*  
Candes, E., Tao, T.  
2007; 35 (6): 2313-2351
- **Errata for quantitative robust uncertainty principles and optimally sparse decompositions** *FOUNDATIONS OF COMPUTATIONAL MATHEMATICS*  
Candes, E. J., Romberg, J.  
2007; 7 (4): 529-531
- **Sparsity and incoherence in compressive sampling** *INVERSE PROBLEMS*  
Candes, E., Romberg, J.  
2007; 23 (3): 969-985
- **Fast computation of Fourier integral operators** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*  
Candes, E., Demanet, L., Ying, L.  
2007; 29 (6): 2464-2493
- **Sparse signal and image recovery from Compressive Samples** *2007 4TH IEEE INTERNATIONAL SYMPOSIUM ON BIOMEDICAL IMAGING : MACRO TO NANO, VOLS 1-3*  
Candes, E., Braun, N., Wakin, M.  
2007: 976-979
- **The phase flow method** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Ying, L., Candes, E. J.  
2006; 220 (1): 184-215
- **Fast geodesics computation with the phase flow method** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Ying, L., Candes, E. J.  
2006; 220 (1): 6-18
- **Near-optimal signal recovery from random projections: Universal encoding strategies?** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Tao, T.  
2006; 52 (12): 5406-5425
- **Stable signal recovery from incomplete and inaccurate measurements** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Candes, E. J., Romberg, J. K., Tao, T.  
2006; 59 (8): 1207-1223
- **Quantitative robust uncertainty principles and optimally sparse decompositions** *2nd International Conference on Computational Harmonic Analysis*  
Candes, E. J., Romberg, J.  
SPRINGER.2006: 227-54
- **Robust uncertainty principles: Exact signal reconstruction from highly incomplete frequency information** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Romberg, J., Tao, T.  
2006; 52 (2): 489-509
- **Fast discrete curvelet transforms** *MULTISCALE MODELING & SIMULATION*  
Candes, E., Demanet, L., Donoho, D., Ying, L.  
2006; 5 (3): 861-899
- **Robust signal recovery from incomplete observations** *2006 IEEE INTERNATIONAL CONFERENCE ON IMAGE PROCESSING, ICIP 2006, PROCEEDINGS*  
Candes, E., Romberg, J.  
2006: 1281-1284
- **Encoding the  $l(p)$  ball from limited measurements** *DCC 2006: DATA COMPRESSION CONFERENCE, PROCEEDINGS*  
Candes, E., Romberg, J.  
2006: 33-42
- **Decoding by linear programming** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Candes, E. J., Tao, T.

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2005; 51 (12): 4203-4215

- **The curvelet representation of wave propagators is optimally sparse** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Candes, E. J., Demanet, L.  
2005; 58 (11): 1472-1528
- **Continuous Curvelet Transform - II. Discretization and frames** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candes, E. J., Donoho, D. L.  
2005; 19 (2): 198-222
- **Continuous Curvelet Transform - I. Resolution of the wavefront set** *APPLIED AND COMPUTATIONAL HARMONIC ANALYSIS*  
Candes, E. J., Donoho, D. L.  
2005; 19 (2): 162-197
- **Signal recovery from random projections** *COMPUTATIONAL IMAGING III*  
Candes, E., Romberg, J.  
2005; 5674: 76-86
- **Error correction via linear programming** *46TH ANNUAL IEEE SYMPOSIUM ON FOUNDATIONS OF COMPUTER SCIENCE, PROCEEDINGS*  
Candes, E., Rudelson, M., Tao, T., Vershynin, R.  
2005: 295-308
- **New tight frames of curvelets and optimal representations of objects with piecewise C-2 singularities** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*  
Candes, E. J., Donoho, D. L.  
2004; 57 (2): 219-266
- **Ridgelets: Estimating with ridge functions** *ANNALS OF STATISTICS*  
Candes, E. J.  
2003; 31 (5): 1561-1599
- **Gray and color image contrast enhancement by the curvelet transform** *IEEE TRANSACTIONS ON IMAGE PROCESSING*  
Starck, J. L., Murtagh, F., Candes, E. J., Donoho, D. L.  
2003; 12 (6): 706-717
- **Curvelets and Fourier integral operators** *COMPTEs RENDUS MATHEMATIQUE*  
Candes, E., Demanet, L.  
2003; 336 (5): 395-398
- **Astronomical image representation by the curvelet transform** *ASTRONOMY & ASTROPHYSICS*  
Starck, J. L., Donoho, D. L., Candes, E. J.  
2003; 398 (2): 785-800
- **New multiscale transforms, minimum total variation synthesis: applications to edge-preserving image reconstruction** *SIGNAL PROCESSING*  
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