# RESUME MICKAËL TANTER

## Personal Information


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| **Address:** | Institut Langevin, E.S.P.C.I. 1, rue Jussieu, 75005 Paris, France |
| **Date of Birth:** | December 31, 1970 (45 years old) |
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| **Team webpage:** | http://www.institut-langevin.espci.fr/EPOM |


## Current Position and Achievements

- Director of **INSERM U979 *"Wave Physics for Medicine"* (49 people)**
- Director of the first **Inserm Technology Research Accelerator** (Biomedical Ultrasound)
- Deputy Director of **Langevin Institute (125 people)**, E.S.P.C.I Paris, CNRS UMR7587.

From 2000 to 2005, I was an Associate Research Professor for CNRS (French Center for Scientific Research) and strongly developed the research topic "Ultrasound Imaging and Therapy" at laboratoire Ondes et Acoustique, ESPCI, Paris.
In December 2005, I became the youngest Tenured Research Professor of the french National Institute of Health INSERM (34 Years Old).

In September 2005, **I co-founded *Supersonic Imagine*** with Mathias Fink, Jacques Souquet and Claude Cohen-Bacrie (**165 Employees today**). ***Supersonic Imagine*** mission is to develop and commercialize ultrasound diagnostic and therapeutic systems, based on the research work I have been working on for more than 20 years.

From 2009 to date, I invented with my team an innovation that will enable soon Ultrasound to become a new and full-fledged neuroimaging modality. We made the proof of concept of fUltrasound (functional ultrasonic imaging of the brain activity). **fUltrasound is a breakthrough innovation which should lead to great advances in neuroscience and cognitive science.**
From 2010 to date, I also patented and developed with my team the first biomedical imaging modality able to non-invasively reach microscopic resolutions at several cm depth based on **Ultrasound Localization Microscopy**.

**For these reasons, my research work led to break the fundamental barriers of both main features of Ultrasound imaging** (its temporal and spatial resolutions) by introducing the concepts of Ultrafast imaging (10 000 frames per second compared to 50 frames per second of the state of the art) and Ultrasound localization Microscopy (5 µm compared to 0.5 mm ultrasound resolution of the state of the art).

## Academic degrees

- **Dec. 2004** Habilitation for Research Director in Physics, University Paris VII
  "New Perspectives in ultrasonic medical imaging and therapy"
- **Oct. 1995 - May 1999.** Ph.D. Thesis in Physics, University Paris VII, with honors.
  "Application of time reversal focusing to brain HIFU treatments"
  (Directed by Pr. Mathias Fink)
- **Sept. 1994 – Oct. 1995.** Military Service as a research assistant at the french office for Aerospace
  "Influence of the Faraday effect on ionospheric wave propagation"
- **Sept. 1993 – Jun. 1994.** Master of Science in Acoustics , University Paris VII, with honors
  "Doppler Imaging" (Philips Redearch France)
- **Sept. 1991 – Jun. 1994.** Electrical Engineering Degree at SUPELEC (Ecole Supérieure d'Electricité)

## Publications and Patents

- more than 400 publications **(240 publications** in int. peer reviewed journals or book chapter**, 160 proceedings**)
- **45 patents** in the field of ultrasonics, medical applications of ultrasound
- **more than 100 invited, keynote and plenary lectures** at international conferences

## Activities and Responsabilities

- Director of the INSERM U979 "Wave Physics for Medicine" Laboratory
- Director of Inserm ART (Accelerator of Technology Research) in Biomedical Ultrasound
- Deputy Director of the Langevin Institute at E.S.P.C.I, ParisTech.
- Co-Founder, Share Holder and Advisor of **SUPERSONIC IMAGINE** inc. (165 employees)
- Co-Founder and Share holder of **SEISME** inc. (licencing the world patent of **Fibroscan®**)
- Co-Founder and Share holder of **CARDIAWAVE** inc. in 2014
- Co-Founder and Share holder of **NEUROFLOWS** inc. in 2016
- Member of the Scientific Advisory Board of *Physics in Medicine and Biology*
- Associate Editor of *IEEE Transactions of Ultrasonics, Ferroelectrics and Frequency Control*
- Member of the Scientific Board of Region Ile de France
- Member of the Scientific Board of Caviskills company 2013-2014
- Member of the Scientific Board of IEEE UFFC
- Elected Member of the Administrative board of IEEE UFFC
- Member of the Administrative Board of Institut de Physique du Globe de Paris
- Member of the Inserm Commission CSS8 (2012-2016)
- Member of the Brain Advisory Board of the Focused Ultrasound Foundation
- Member of the international society for therapeutic Ultrasound (ISTU), French Acoustic Society, and IEEE society
- Participation to 80 jurys for national or international PhD defense

## Prizes and Distinctions

- Grand Prize of the Foundation pour la Recherche Médicale (F.R.M.) in 2016
- Outstanding 2015 Paper Award of the international journal IEEE Transactions in Ultrasonics
- Grand Prize of the fondation de la Recherche Médicale in 2016
- Grand Prize of the Fondation NRJ, Institut de France, French Academy of Science
- Roberts Prize of Physics in Medicine and Biology in 2015 for the best paper of the year
- Distinguished Lecture in Biomedical Engineering of CalTech university, 2015
- Carson-Zagzebski Distinguished Lecture of the American Association of Physics in Medicine, 2015
- Research Prize of Langlois Foundation, Paris, France 2015
- Prix de la fondation pour l'innovation thérapeutique Béatrice Denys (2015, projet Valvopulse)
- Co-Laureate of World innovation concourse CMI Phase I & Phase II (project Valvosoft) in 2014
- Prize OPECST-INSERM 2014 (French National Institute of Health and Medical Research)
- Laureate of an ERC Advanced Grant in 2013 (most competitive scientific grant in Europe)
- Grand Prize of Medicine and Medical Research – Jean Hamburger - of Paris city 2012
- Honored Lecture of the Radiology Society of North America in 2012 (50 000 participants)
- Prize Yves Rocard of the French Society of Physics (S.F.P.) in 2011
- Sylvia Sorkin Greenfield Award of the American Association of Physicists in Medicine for the best paper published in Medical Physics in 2011

- Montgolfier Prize of the Société d'Encouragement de l'Industrie Nationale (French National Society for the National Industry promotion) in 2010
- Leon Brillouin Prize of the S.E.E. and I.E.E.E. societies in 2010.
- Outstanding 2010 Paper Award of the international journal IEEE Transactions in Ultrasonics
- Frederic Lizzi Early Career Prize of the International Society of Therapeutic Ultrasound in 2009

## Contributions to the field of Medical Imaging

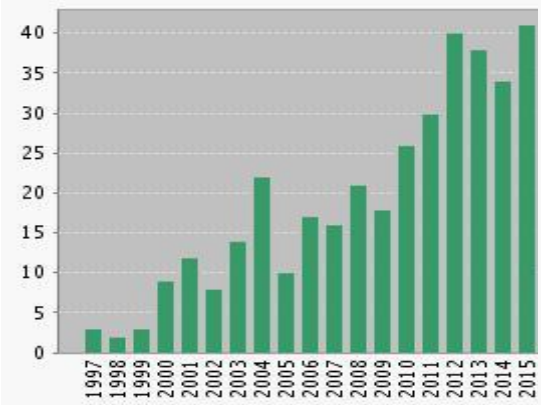
- Co-Inventor of the concept of **Ultrafast Ultrasonic Scanners** for Transient Elastography in 1998
- **Co-inventor of the world patent of Fibroscan® (>3000 systems sold by Echosens company)**
- Co-Inventor with M. Fink of the Supersonic Shear Wave Imaging modality (ShearWave Elastography)
- **Co-founder and scientific advisor of Supersonic Imagine developing Ultrasound imaging systems for medical diagnosis (Aixplorer® scanner, > 1300 systems sold worldwide)**
- Application of Supersonic Shear Imaging to Breast cancer, Liver fibrosis, cardiovascular applications...
- **Co-Inventor of the concept of fUltrasound** : functional ultrasonic imaging of brain Activity
- **Co-Inventor of the concept of Ultrasound Localization Microscopy**

## Contributions to the field of Ultrasound Therapy

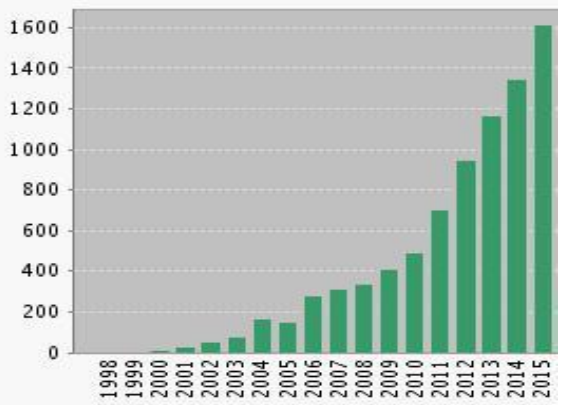
- Proof of concept of Transcranial adaptive focusing using time reversal
- In vivo Demonstration of brain thermal ablation on 20 sheep using implanted hydrophone
- First In vivo Demonstration of non invasive brain thermal ablation on 5 monkeys
- Development of two generations of HIFU Time Reversal Mirrors Technology
- First Demonstration of 3D real time control and correction of HIFU beams

## h-Index and Citations

- ISI Web of Knowledge : **h-Index 50, > 9300 citations**
- Google Scholar : **h-Index 57, >14000 citations**




**Published Items in each Year**




**Citations in Each Year**

## TEN MAIN PUBLICATIONS

1. C. Errico, J. Pierre, S. Pezet, Y. Desailly, Z. Lenkei, O. Couture, M. Tanter
Ultrafast ultrasound localization microscopy for deep in vivo super-resolution vascular imaging
***Nature***, September 2015.

2. M.E. Fernandez-Sanchez et al
Mechanical induction of the tumorigenic beta-catenin pathway by tumour growth pressure
***Nature***, July 2015

**3.** Mace, E.; Montaldo, G.; Cohen, I.; Baulac, M.; Fink, M. & Tanter, M., 'Functional ultrasound imaging of the brain',
***Nature Methods*** **8**(8), 662--U85, 2011

4. B. Osmanski, S. Pezet, A. Ricobaraza, Z. Lenkei, M. Tanter
Functional ultrasound imaging of intrinsic connectivity in the living rat brain with high spatiotemporal resolution
***Nature Communications***, October 2014

5. L.-A. Sieu, Antoine Bergel, E. Tiran, T. Deffieux, M. Pernot, JL. Gennisson, M. Tanter, I. Cohen
EEG and functional ultrasound imaging in mobile rats
***Nature Methods***, Sept. 2015

6. Tanter M and Fink M.
Ultrafast Imaging in Biomedical Ultrasound (**Hot Paper**, ISI Wok Thomson Reuters)
***IEEE Transactions On Ultrasonics Ferroelectrics and Frequency Control***, Jan. 2014

7. Bercoff, J.; Tanter, M. & Fink, M. (2004)
Supersonic shear imaging: A new technique for soft tissue elasticity mapping
***IEEE Transactions On Ultrasonics Ferroelectrics and Frequency Control*** 51(4), 396--409.
**(most cited paper since 2000 in IEEE Transactions on Ultrasonics)**

8. Tanter, M.; Bercoff, J.; Athanasiou, A.; Deffieux, T.; Gennisson, J.-L.; Montaldo, G.; Muller, M.; Tardivon, A. & Fink, M.
Quantitative assessment of breast lesion viscoelasticity: Initial clinical results using supersonic shear imaging
***Ultrasound in Medicine and Biology*** **34**(9), 1373--1386. 2008
**(most cited article in Ultrasound in Medicine and Biology since 2007)**

9. Couture, O.; Faivre, M.; Pannacci, N.; Babataheri, A.; Servois, V.; Tabeling, P. & Tanter, M.
Ultrasound internal tattooing
***Medical Physics*** 38(2), 1116--1123. , 2011
**Prize of the Best paper in Medical Physics in 2011**

10. Jean Provost, Clement Papadacci, Juan Esteban Arango, Marion Imbault, Mathias Fink, Jean-Luc Gennisson, Mickael Tanter and Mathieu Pernot
3D ultrafast ultrasound imaging in vivo
***Physics in Medicine and Biology***, Jan. 2014
**(Prize of the Outstanding paper in IEEE Transactions on Ultrasonics in 2010 (among 266 papers)**

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## Monographs or Book Chapters

Time reversing waves for Biomedical applications
Mickael Tanter and Mathias Fink
*Mathematical Modeling in Biomedical Imaging*, Editor H. Ammari, Collection lecture notes in mathematics, Springer.

Time Reversal of Waves
Mickael Tanter and Mathias Fink
Material and Acoustics Handbook, Edited by M. Bruneau and C. Potel, Wiley & Sons.

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## Prizes awarded to my students at international symposiums in the last 3 years

Benoit Larrat
Best Student Award of the 2009 International Symposium on Therapeutic Ultrasound, Aix-en Provence, France.

Emilie Macé
Best Student Award of the 2010 International Tissue Elasticity Conference, Salt Lake City, USA.

Jérome Gateau
Best Student Award of the 2010 International Symposium on Therapeutic Ultrasound, Tokyo, Japon.

Emilie Macé
Best Student Award of the 2010 IEEE International Ultrasonics Symposium, San Diego, USA.

Emilie Macé
Best Student Award of the New England Doppler Conference, Artimino, Italy, 2011.

Bastien Arnal
Best Student Award du European Workshop "Therapeutic Ultrasound 2011" of the International Society for Therapeutic Ultrasound.

Thu-Mai NGuyen
Best Student Award of the 2011 International Tissue Elasticity Conference, Arlington, USA.

Mathieu Couade
Best Young Investigator Award of the European EchoCardiology congress (EuroEcho 2011), Hungary, 2012.

Benoit Larrat
2010 Outstanding Paper Award of IEEE Transactions in Ultrasonics, Orlando, 2011.

Bastien Arnal
Nadine Barrie Smith Award of the International Society for Therapeutic Ultrasound, June 2012.

Jérôme Gateau
Prize for the best Thesis of EMBS IEEE France, SFGBM, AGBM and GDR-STIC-Santé societies 2012

Charlie Déméné
Prize of the best Poster of the European meeting on Neurosonology and Cerebral hemodynamics, Porto, Portugal, 2013

Clement Papadacci
Best Student Award of the International Ultrasonics Symposium (IEEE IUS 2013) in Prague,Cz. 2013

Claudia Errico

Best Student Award of the french meeting of GTRV (Groupe Thématique de Recherche sur la Vectorisation) in 2013

Emilie Macé
Award for the best PhD thesis from "Le Monde" newspaper, Nov. 2013.

Charlie Demené
Best Student Award of the World Congress of Biomechanics, Boston, June 2014

Charlie Demené
Best Student Award of the IEEE International Ultrasonics Symposium, Chicago, Sept. 2014

Marion Imbault
Best Student Award of the IEEE International Ultrasonics Symposium, Taiwan, Oct. 2015

Claudia Errico
Best Student Award of the 19th European Symposium on Ultrasound Contrast Imaging in Jan. 2015

Elodie Tiran
Best Student Award of the IEEE International Ultrasonics Symposium, Tours, Sept. 2016

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## Publications list


[1] P. Roux, J. deRosny, M. Tanter, and M. Fink, "The Aharonov-Bohm effect revisited by an acoustic time-reversal mirror," *Physical Review Letters,* vol. 79, pp. 3170-3173, Oct 27 1997.

[2] M. Tanter, J. L. Thomas, and M. Fink, "Influence of boundary conditions on time-reversal focusing through heterogeneous media," *Applied Physics Letters,* vol. 72, pp. 2511-2513, May 18 1998.

[3] M. Tanter, J. L. Thomas, and M. Fink, "Focusing and steering through absorbing and aberrating layers: Application to ultrasonic propagation through the skull," *Journal of the Acoustical Society of America,* vol. 103, pp. 2403-2410, May 1998.

[4] C. Le Floch, M. Tanter, and M. Fink, "Self-defocusing in ultrasonic hyperthermia: Experiment and simulation," *Applied Physics Letters,* vol. 74, pp. 3062-3064, May 17 1999.

[5] L. Sandrin, S. Catheline, M. Tanter, X. Hennequin, and M. Fink, "Time-resolved pulsed elastography with ultrafast ultrasonic imaging," *Ultrasonic Imaging,* vol. 21, pp. 259-272, Oct 1999.

[6] M. Fink, D. Cassereau, A. Derode, C. Prada, P. Roux, M. Tanter*, et al.*, "Time-reversed acoustics," *Reports on Progress in Physics,* vol. 63, pp. 1933-1995, Dec 2000.

[7] M. Tanter, J. L. Thomas, and M. Fink, "Time reversal and the inverse filter," *Journal of the Acoustical Society of America,* vol. 108, pp. 223-234, Jul 2000.

[8] J. F. Aubry, M. Tanter, J. Gerber, J. L. Thomas, and M. Fink, "Optimal focusing by spatio-temporal inverse filter. II. Experiments. Application to focusing through absorbing and reverberating media," *Journal of the Acoustical Society of America,* vol. 110, pp. 48-58, Jul 2001.

[9] A. Derode, M. Tanter, A. Tourin, L. Sandrin, and M. Fink, "Numerical and experimental time-reversal of acoustic waves in random media," *Journal of Computational Acoustics,* vol. 9, pp. 993-1003, Sep 2001.

[10] S. Manneville, C. Prada, M. Tanter, M. Fink, and J. F. Pinton, "Ultrasound propagation through a rotational flow: Numerical methods compared to experiments," *Journal of Computational Acoustics,* vol. 9, pp. 841-852, Sep 2001.

[11] S. Manneville, P. Roux, M. Tanter, A. Maurel, M. Fink, F. Bottausci*, et al.*, "Scattering of sound by a vorticity filament: An experimental and numerical investigation," *Physical Review E,* vol. 63, Mar 2001.

[12] M. Tanter, J. F. Aubry, J. Gerber, J. L. Thomas, and M. Fink, "Optimal focusing by spatio-temporal inverse filter. I. Basic principles," *Journal of the Acoustical Society of America,* vol. 110, pp. 37-47, Jul 2001.

[13] M. Tanter, J. L. Thomas, F. Coulouvrat, and M. Fink, "Breaking of time reversal invariance in nonlinear acoustics," *Physical Review E,* vol. 64, Jul 2001.

[14] L. Sandrin, M. Tanter, S. Catheline, and M. Fink, "Shear modulus imaging with 2-D transient elastography," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 49, pp. 426-435, Apr 2002.

[15] L. Sandrin, M. Tanter, J. L. Gennisson, S. Catheline, and M. Fink, "Shear elasticity probe for soft tissues with 1-D transient elastography," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 49, pp. 436-446, Apr 2002.

[16] M. Tanter, J. Bercoff, L. Sandrin, and M. Fink, "Ultrafast compound imaging for 2-D motion vector estimation: Application to transient elastography," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 49, pp. 1363-1374, Oct 2002.

[17] J. F. Aubry, M. Tanter, M. Pernot, J. L. Thomas, and M. Fink, "Experimental demonstration of noninvasive transskull adaptive focusing based on prior computed tomography scans," *Journal of the Acoustical Society of America,* vol. 113, pp. 84-93, Jan 2003.

[18] J. Bercoff, S. Chaffai, M. Tanter, L. Sandrin, S. Catheline, M. Fink*, et al.*, "In vivo breast tumor detection using transient elastography," *Ultrasound in Medicine and Biology,* vol. 29, pp. 1387-1396, Oct 2003.

[19] S. Catheline, J. L. Gennisson, M. Tanter, and M. Fink, "Observation of shock transverse waves in elastic media," *Physical Review Letters,* vol. 91, Oct 17 2003.

[20] A. Derode, E. Larose, M. Tanter, J. de Rosny, A. Tourin, M. Campillo*, et al.*, "Recovering the Green's function from field-field correlations in an open scattering medium (L)," *Journal of the Acoustical Society of America,* vol. 113, pp. 2973-2976, Jun 2003.

[21] A. Derode, A. Tourin, J. de Rosny, M. Tanter, S. Yon, and M. Fink, "Taking advantage of multiple scattering to communicate with time-reversal antennas," *Physical Review Letters,* vol. 90, Jan 10 2003.

[22] M. Fink, G. Montaldo, and M. Tanter, "Time-reversal acoustics in biomedical engineering," *Annual Review of Biomedical Engineering,* vol. 5, pp. 465-497, 2003 2003.

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[24] S. Yon, M. Tanter, and M. Fink, "Sound focusing in rooms. II. The spatio-temporal inverse filter," *Journal of the Acoustical Society of America,* vol. 114, pp. 3044-3052, Dec 2003.

[25] S. Yon, M. Tanter, and M. Fink, "Sound focusing in rooms: The time-reversal approach," *Journal of the Acoustical Society of America,* vol. 113, pp. 1533-1543, Mar 2003.

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[27] J. Bercoff, M. Tanter, and M. Fink, "Supersonic shear imaging: A new technique for soft tissue elasticity mapping," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 51, pp. 396-409, Apr 2004.

[28] J. Bercoff, M. Tanter, and M. Fink, "Sonic boom in soft materials: The elastic Cerenkov effect," *Applied Physics Letters,* vol. 84, pp. 2202-2204, Mar 22 2004.

[29] J. Bercoff, M. Tanter, M. Muller, and M. Fink, "The role of viscosity in the impulse diffraction field of elastic waves induced by the acoustic radiation force," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 51, pp. 1523-1536, Nov 2004.

[30] J. L. Gennisson, T. Baldeweck, M. Tanter, S. Catheline, M. Fink, L. Sandrin*, et al.*, "Assessment of elastic parameters of human skin using dynamic elastography," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 51, pp. 980-989, Aug 2004.

[31] G. Montaldo, D. Palacio, M. Tanter, and M. Fink, "Time reversal kaleidoscope: A smart transducer for three-dimensional ultrasonic imaging," *Applied Physics Letters,* vol. 84, pp. 3879-3881, May 10 2004.

[32] G. Montaldo, M. Tanter, and M. Fink, "Real time inverse filter focusing through iterative time reversal," *Journal of the Acoustical Society of America,* vol. 115, pp. 768-775, Feb 2004.

[33] G. Montaldo, M. Tanter, and M. Fink, "Revisiting iterative time reversal processing: Application to detection of multiple targets," *Journal of the Acoustical Society of America,* vol. 115, pp. 776-784, Feb 2004.

[34] M. Pernot, M. Tanter, J. Bercoff, K. R. Waters, and M. Fink, "Temperature estimation using ultrasonic spatial compound imaging," *Ieee Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 51, pp. 606-615, May 2004.

[35] M. Pernot, M. Tanter, and M. Fink, "3-D real-time motion correction in high-intensity focused ultrasound therapy," *Ultrasound in Medicine and Biology,* vol. 30, pp. 1239-1249, Sep 2004.

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[41] T. Deffieux, J.-L. Gennisson, M. Tanter, M. Fink, and A. Nordez, "Ultrafast imaging of in vivo muscle contraction using ultrasound," *Applied Physics Letters,* vol. 89, Oct 30 2006.

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[45] M. Pernot, G. Montaldo, M. Tanter, and M. Fink, ""Ultrasonic stars" for time-reversal focusing using induced cavitation bubbles," *Applied Physics Letters,* vol. 88, Jan 16 2006.

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*in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference,* vol. 2007, pp. 234-7, 2007 2007.

[53] M. Pernot, J.-F. Aubry, M. Tanter, A.-L. Boch, F. Marquet, M. Kujas*, et al.*, "In vivo transcranial brain surgery with an ultrasonic time reversal mirror," *Journal of Neurosurgery,* vol. 106, pp. 1061-1066, Jun 2007.

[54] R. Sinkus, K. Siegmann, T. Xydeas, M. Tanter, C. Claussen, and M. Fink, "MR elastography of breast lesions: Understanding the solid/liquid duality can improve the specificity of contrast-enhanced MR mammography," *Magnetic Resonance in Medicine,* vol. 58, pp. 1135-1144, Dec 2007.

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**Referee and Jury of PhD Defense**

Jean-François Aubry (March 2002) Thesis in Physics, University Paris VII.

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Lucie Somaglino, Thesis in Physics , Université Lyon, 2010.

Jean Francois Deprez, Thesis in Physics, Université Lyon, 2009.

Alexandre Goguin, Thesis in Physics, Université Paris VI, Pitié Salpêtrière, 22 Octobre 2010.

Benoit Larrat, Thesis in Physics, Université Paris VII, 2011

Jerome Gateau, Thesis in Physics, Université Paris VII, 2011

Bruno Quesson, Habilitation à diriger des recherches, Mars 2012

Frédéric Pain, Habilitation à diriger des recherches, Septembre 2012

Emilie Macé, Thesis in Physics, Université Paris VII, March 2012

Heldmuth Latorre Ossa, Thesis in Physics, Université Paris VII, March 2012

Javier Brum, Université de Montevideo, Uruguay & Université Grenoble, Novembre 2012

Thu-Mai Nguyen, Thesis in Physics, Université Paris VII, December 2012.

Bastien Arnal, Thesis in Physics, Université Paris VII, January 2013.

Antoine Nordez, Habilitation à diriger des Recherches, Université Nantes, March 2013.

David Maresca, Thesis in Physics, University of Rottterdam, The Netherlands, Mai 2013.

Mathieu Legros, Thesis in Physics, Université François Rabelais Tours, June 2012.

Jean Luc Gennisson, Habilitation à diriger des recherches, University Paris VI, June 2012.

Laurent Marsac (September 2013), Thesis in Physics, University Paris VII.

Pol Grasland, December 2013, Thesis in Physics, University Lyon.

Thomas Payen, December 2013, Thesis in Physics, University Paris VI.

Ling Tong, December 2013, Thesis in Physics, Leuven University, Leuven, Belgium.

Clementine Helfenstein, November 2013, Thesis in Physics, University Lyon, France

Youliana Younan, Mars 2014, Thesis in Physics, University Paris VI, Paris

Bastien Denarie, Mars 2014, Thesis in Physics, Trondheim University, Norway

Bruno Osmanski, May 2014, Thesis in Physics, University Paris VII, 2014

Redouane Ternifi, October 2014, Thesis in Physics, University Francois Rabelais Tours, France

Clement Papadacci, November 2014, Thesis in Physics, University Paris VII, France

François Artis, December 2014, Thesis in Physics, University Toulouse, France

Guillaume Dubois, December 2014, Thesis in Biomechanics, Ecole des Arts et Metiers, Paris

Matteo Lenge, March 2015, Thesis in Physics, University of Florence, Italy

Alexander Serov, June 2015, Thesis in Physics, Ecole Polytechnique, France

Charlie Demene, September 2015, Thesis in Physics, University paris VII, France

Sebastien Salles, October 2015, Thesis in Physics, University Lyon, France

Claudia Errico, February 2015, Thesis in Physics, University Paris VII, France

Yann Desailly, July 2016, Thesis in Physics, University Paris VII, France

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## PhD Students

- Jerome Baranger (2016-2019)
- Martin Flesch (Since January 2014)
- Marion Imbault (Since January 2014)
- Elodie Tiran (Since January 2014)
- Yann Desailly (Since February 2013)
- Stephanie Franchi, (Since September 2012)
- Claudia Errico, (September 2012-Feb. 2016)
- Charlie Démené (2012-2015)
- Youliana Younan (2011-2014)
- Clementine Helfenstein (October 2010-Décembre 2013)
- Amir Nahas (2011- 2014)
- Wojciech Kwiecieski (2011-2014)
- Bruno-Félix Osmansky (2010-2014)
- Heldmuth Latorre (Since September 2009)
- Laurent Marsac (Since September 2009)
- Bastien Arnal (Since July 2009)
- Thu May N'guyen (Since July 2009)
- Mathieu Couade (Since Oct. 2007)
- Emilie Mace (Since Oct. 2008)
- Fabrice Marquet (Sept 2005 – May 2009)
- Thomas Deffieux (Sept. 2005 - November 2008)
- Benoit Larrat (Sept. 2006 - November 2009)
- Mathieu Pernot (Sept. 2001–Nov. 2004) « Ultrasonic brain therapy» (50%)
- Jérémy Bercoff (Sept. 2001 – Dec. 2004) « Medical applications of ultrasonic ultrafast imaging »
- Jean-François Aubry (Sept. 1999-March 2002) « Adaptive focusing throug the human skull »
- Jean Luc Gennisson (Sept. 1999 – Dec. 2003) « 1D Transient elastography » ( 50%)

## Invited papers at international conferences

*1. Ultrasonic focusing and steering through skull : Towards brain imaging*
M. Tanter, J.L. Thomas, M. Fink.
**The journal of the Acoustical Society of America**, Seattle, USA, Juin 1998.
135 th Meeting: Seattle, Washington (ICA/ASA '98 Juin 1998.

*2. Focusing by spatio-temporal inverse filter : Application to heterogeneous and absorbing media*
M. Tanter, J.-F. Aubry, J.L. Thomas, M. Fink.
**The journal of the Acoustical Society of America**, Fort Lauderdale, USA, December 2001.
139 th Meeting: Fort Lauderdale, Florida (ASA '01, December 2001).

*3. New developments in ultrasonic adaptive focusing through the human skull : Application to non invasive brain therapy and imaging*
M. Tanter, J.-F. Aubry, M. Pernot, J.-L. Thomas, F. Vignon and M. fink
27th International Symposium on **Acoustical Imaging**, Saarbrücken, mars 2003.

*4. Supersonic imaging of elasticity*
M. Fink, M. Tanter, J. Bercoff
145 th Meeting of **The journal of the Acoustical Society of America**, Nashville, USA, Avril 2003.

*5. Elasticity imaging with remote palpation and high speed imaging*
M. Fink, M.Tanter
**30th symposium of the British Medical Ultrasound Society,** Harrogate 2003.

*6. Supersonic Shear Imaging: A New Ultrafast Image Modality*
M. Tanter, J. Bercoff, M. Fink.
Annual conv. of the **American Institute of Ultrasound in Medicine**, Phoenix, June 2004.

7. Ultrafast echographic devices qnd ultrasonic remote palpation for in-vivo elasticity imaging
M.Tanter
**"IVth Acoustical Imaging of Complex Media: Applications in Medicine, Seismology and Oceanography" Meeting**, Cargèse 2005.

8. Ultrafast echographic devices for in-vivo elasticity imaging
M.Tanter
**Workshop « Méthodologies de l'Inversion des Ondes & Modèles Directs »**, Paris 2005.

*9. Medical applications of Time reversal*
M.Tanter, M. Fink
**150th meeting of the American Society of America**, Minneapolis October 2005.

*10. Time reversal of acoustics waves in nonlinear acoustics*
M.Tanter, M. Fink
**Joint RAO/SFA (Russian Academy of Science/Société Française d'Acoustique) meeting**, Moscou, Novembre 2005.

*11. Applications of Time reversal to ultrasonic medical imaging and therapy*
**M.Tanter**
**AFPAC'06, Congrès franco-anglai d'Acoustique Physique, Physical Acoustics of the Institute of Physics**, Janvier 2006.

*12. New devices and Promising Approaches in clinical HIFU applications*

M. Tanter
International Society of Therapeutic Ultrasound, September 2006.

*13. Caractérisation tissulaire par élastographie en US et en IRM : potentiels en clinique*
M. Tanter, R. Sinkus
Journées Françaises de Radiologie, Octobre 2006.

*14. Imaging the viscoelastic properties of tissues using MRI and ultrasound : Towards an improvement of breast cancer diagnosis*
M. Tanter
French American Innovation Days, Harvard Medical School, Boston, Octobre 2006.

*15. Multichannels ultrasonic systems for HIFU applications*
M. Tanter
American Institute for Ultrasound in Medicine, New York, March 2007.

*16. Compensating for bone interfaces and respiratory motion*
M. Tanter
European Therapeutic Ultrasound Workshop, April 2007.

*17. Medical Applications of Elastography*
M. Tanter
Imaging in Complex Media Workshop, October 2007.

*18. L'élastographie par IRM et Ultrasons : de nouveaux outils diagnostic en cancérologie*
M. Tanter
9ème Conférence internationale de l'ACOMEN (Médecine Nucléaire), Nice, Mai 2007.

*19. Elastographie du sein par IRM et Ultrasons*
M. Tanter
Journées de Recherche en Imagerie Médicale, Dijon, Septembre 2007.

*20. A review of human tissue viscoelasticity imaging*
M. Tanter
French-Russian Nonlinear acoustics workshop, 3-8 March 2008.

*21. Human tissue Viscoelasticity Imaging*
M. Tanter
Advanced Workshop on patient-specific modelling in Biomechanics, Paris, France, 17-21st March 2008 .

*22. Quantitative in vivo assessment of tissue viscoelasticity*
M. Tanter
International symposium on Utrasonic Imaging and Tissue Characterization, 14-17th May 2008, Washington, USA.

*23. Time reversal in nonlinear acoustics : Basic Physics and application to ultrasound contrast imaging*
M. Tanter, O. couture, M. Fink
International symposium of the Acoustical Society of America, July 2008, Paris, France.

*24. Compensation of bone interfaces and respiratory motion in High Intensity Focused Ultrasound*
M. Tanter, J.-F. Aubry, M. Pernot, F. Marquet, G. Montaldo, M. Fink
International symposium of the Acoustical Society of America, July 2008, Paris, France.

25. Skin *Viscoelasticity Imaging*

M. Tanter, M. Fink
ISBS, International meeting of Skin Biomechanics, Besancon, France, September 2009.

*26. A review of Viscoelasticity Imaging using ultrafast sonography*
M. Tanter
Imaging in Complex Media Workshop, May 2009.

*27. Ultrasonic monitoring of HIFU therapy*
M. Tanter
European Therapeutic Ultrasound Workshop, September 2009.

*28. Elastograohy: Past, Present and Future*
M. Tanter
French Congress of Radiology, October 2009.

*29. Real Time quantitative Elastography using Supersonic Shear Wave Imaging*
M. Tanter, M. Pernot, G. Montaldo, E. Macé, T.-M. N'guyen, M. Couade, M. Fink
International Symposium on Biomedical Imaging, Rotterdam, Netherlands, April 2010.

30. A*pplications de l'imagerie ultrarapide en cardiovasculaire*
M. Tanter
Société Française de Pathologie Vasculaire, Paris, March 2010.

*31. Ultrafast Ultrasonic Imaging in Cardiovascular Applications*
M. Tanter, M. Pernot, G. Montaldo, E. Macé, M. Couade, M. Fink
International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease, Rotterdam, April 2010.

*32. Why shear waves are better than ultrasonic waves for Thermal ablation monitoring ?*
M. Tanter, M. Pernot, B. Arnal, E. Sapin de Brosses, M. Fink
International Symposium of Therapeutic Ultrasound, Tokyo, June 2010.

*33. Time Reversal for High Intensity Focused Ultrasound*
M. Fink, M. Tanter
International Symposium of Therapeutic Ultrasound, Tokyo, June 2010.

34. MR Guided adaptive focusing of Ultrasound
M. Tanter , International symposium on MRguided Focused Ultrasound Surgery, Washington, USA, 2010.

*35. L'élastographie du sein : Etat de l'art*
M. Tanter
Congrès de la société française de Mastologie et Imagerie du sein, Arcachon, France, Mai 2010.

*36. MicroELastography for Small animals Imaging*
M. Tanter
2ème Journée d'imagerie du petit animal, Paris, 6 Septembre 2010

37. Applications of Ultrafast Ultrasound for *Small animals imaging*
M. Tanter **(Keynote Lecture of the conference)**
International symposium on Ultrasound BioMicroscopy, Sept. 2010, Matsushima, Japon.

38. Application of Ultrafast Ultrasound Imaging in small animal imaging
M. Tanter
European Workshop of the Molecular Imaging society, Les Houches, France, March 2011.

39. MR Guided adaptive focusing of ultrasonic Waves for transcranial brain therapy
M. Tanter , International Brain workshop, Focused Ultrasound Foundation, Charlottesville, USA, 2011

40. New applications of ultrafast ultrasonic imaging
M. Tanter , New England Doppler Conference, Artimino, Italy, Mai 2011.

41. Functional Ultrasonic Imaging of the brain activity
M. Tanter , International Brain workshop, Focused Ultrasound Foundation, Charlottesville, USA, 2011

42. Applications of ultrafast ultrasonic imaging
M. Tanter , World congress of Acoustics 2012, Nanjing, China, Mai 2012

43. Functional Ultrasonic Imaging of the brain activity
M. Tanter , European Stroke Conference, Lisboa, Portugal, Mai 2012

44. Ultrasound Goes Supersonic
M. Tanter , **Honored Lecture** in the Arie Crown Theater, **RSNA 2012 (60 000 participants)**, Chicago, November 2012

45. Elastography : A new clinical modality
M. Tanter , British Medical Ultrasound Symposium, UK, December 2012

46. The future of ultrasound imaging : functional Ultrasound imaging of the brain
M. Tanter , **Keynote Lecture, British Medical Ultrasound Symposium**, UK, December 2012

47. Shear Wave Elastography : Physical principles and clinical applications
M. Tanter , British Medical Ultrasound Symposium, UK, December 2012

48. Therapeutic applications of Ultrasound
M. Tanter , International Summer School on ultrasonic nanoporation, Dundee, UK, September 2012

49. Ultrafast Ultrasound Imaging
M. Tanter , Next Generation Medical Imaging, Carnegie Mellon University, Pittsburg USA, September 2012

50. Therapeutic applications of Ultrasound
M. Tanter , France-Japon Joint Academic Forum on Computer Aided Surgery, Strasbourg, France December 2012

51. Ultrasound in the Brain
M. Tanter, Annual conference of the SEISC (Blood Brain Barrier Society), Paris, France October 2012.

52. Applications of HIFU in the brain
M. Tanter, SFNR, Paris, France February 2012.

53. The Road to Commercialization in Ultrasound imaging and therapy
M. Tanter , European Workshop on Therapeutic Ultrasound, Les Houches, Marc 2013, France.

54. Functional Ultrasound Imaging of the Brain using plane wave imaging
M. Tanter , European Congress of NeuroSonology, Porto, May 2013, Portugal.

55. "Wave Physics, Ultrasound and Medicine"

M. Tanter , **Plenary Lecture**, French Society of Physics, Marseille, July 2013, France.

56. Functional Ultrasound Imaging of the Brain using plane wave imaging
M. Tanter , IEEE International Ultrasonics Symposium, June 2013, Prague, Czech Republic.

57. fUltrasound : a new neuroimaging modality
M. Tanter , IEEE International Ultrasonics Symposium, June 2013, Prague, Czech Republic.

58. Advances in Ultrasound monitoring of HIFU treatments
M. Tanter , European Symposium on Focused Ultrasound Therapy, Rome (Italy) 10-11th October 2013

59. A review of Shear Wave Elastography applications
M. Tanter , Acoustical Society of America, meeting in San Francisco, California, 2—6 December 2013.

60. fUltrasound in Neurosonology
M. Tanter, XVI World NeuroSonology Meeting, Sofia, Bulgaria, October 2013

61. L'imagerie ultrarapide : le futur de l'échographie
M. Tanter, Journées Françaises de Radiologie (JFR'2013), Paris, October 2013

62. Shear Wave Elastography in Medical Diagnostic Imaging
M. Tanter, Taiwan, October 2013 **(Keynote Lecture of the conference)**

63. The future of Cardiology: Ultrafast imaging in echocardiography
M. Tanter, International congress of the french Society of Cardiology, Paris, January 2014

64. High frame rate imaging in Ultrasound
M. Tanter, Symposium of the American Institute of Ultrasound in Medicine, Las Vegas, April 2014

65. "Ultrafast Ultrasonic Imaging: from Shear Wave Elastography to Functional Imaging of the Brain Activity"
M. Tanter, 8th winter conference of the European Society for Molecular Imaging, Jan. 2014

66. "Ultrafast Imaging in Biomedical Ultrasound"
M. Tanter, International Symposium of Biomedical Imaging, Beijing, May 2014

67. "The Ultrafast Ultrasound revolution : Current and future applications"
M. Tanter, European Congress of Radiology, Vienna, March 2014

68. "The Ultrafast Ultrasound revolution : future applications in neonatal imaging"
M. Tanter, Journées françaises de néonatalogie, Paris, 28-29 Mars 2014

69. "Recent Advances in Doppler Imaging"
M. Tanter, IFPA International Federation of Placenta Associations, Paris, 11 September 2014

70. "Recent Advances in Ultrasound Doppler Imaging"
M. Tanter, Journées Françaises de Radiologie, Paris, October 2014

71. "fUltrasound : a new Neuroimaging modality in Neuroscience"
M. Tanter, Neuroscience Saclay Workshop, Paris, December 2014

72. "Multiwave Imaging and Superresolution"
M. Tanter, American Institute of Ultrasound in Medicine, Orlando, March 2015

73. "New advances in Ultrafast Ultrasound"
M. Tanter, European Congress of radiology, Vienna, March 2014

74. "Emergence of Ultrafast Imaging in Medical Imaging"
M. Tanter, American Association of Physics in Medicine, Los Angeles, July 2015

75. Distinguished Lecture of CalTech Seminars,
M. Tanter, California Technology University, USA April 2015

76. "Ultrafast Doppler Imaging in neonates",
M. Tanter, International Neonatal neurology Symposium, Budapest, Hungary, September 2015

77. "Ultrafast Ultrasound Imaging in Urology",
M. Tanter, European Symposium of Urological Imaging, Barcelona, Spain, November 2015

78. "Ultrafast Ultrasound imaging",
M. Tanter, 7th Annual meeting of ITMO Technology for Health, Montpellier, December 2015

79. "Ultrasound for medicine",
M. Tanter, Journées Innovation et santé, La Villette, Paris, France, January 2016

80. "Beating Space and Time resolution limits in Biomedical Ultrasound",
M. Tanter, International Toulouse Onco Week, Toulouse, France, February 2016

81. "Breaking the barriers of temporal and spatial resolution in ultrasound for disruptive imaging of the brain",
M. Tanter, 1ere Conference nationale de l'Imagerie du Vivant CNIV'2016, Paris, France, Feb. 2016

82. "Beating Space and Time resolution limits in Biomedical Ultrasound",
M. Tanter, **Keynote Lecture of the European Symposium on Molecular Imaging** March 2016

83. "Plane Wave Imaging for ultrasensitive flow imaging",
M. Tanter, American Institute of Ultrasound in Medicine, Chairman and invited presentation, New York, USA, March 2016

84. "The Ultrasound revolution",
M. Tanter, Sanofi world Research and Development Science Days, Paris, France, March 2016

85. "Angio PL.U.S: Ultrasensitive Doppler imaging using plane wave imaging"
M. Tanter, European Congress of radiology, Vienna, March 2016

86. "The Biomedical Ultrasound Revolution: Innovation in Cancer, Cardiology, Neuroscience with Wave Physics"
M. Tanter, World Conference Doctors2.0&You, Paris, France, May 2016

87. " Breaking of Space and Time resolution limits in Biomedical Ultrasound"
M. Tanter, **Plenary Speaker**, Ultrasonics 2016 international conference, Lisbon, Portugal, June 2016

88. " Functional Ultrasound imaging of the brain in neonates"
M. Tanter, 10th International Hershey conference, Chateau de Romainville, France, June 2016

89. "Ultrafast Ultrasound imaging, the future of ultrasound"
International Symposium *Echography: New Recipe, now even better!,* Netherlands, June 2016

90. " Ultrasound Superresolution Imaging"
M. Tanter, 16th European Microscopy Conference, Lyon, France, September 2016

91. " The future of Ultrasound"
M. Tanter, World Arthritis Day, Paris, France, October 13th 2016

92. " The advantages of Ultrafast imaging"
M. Tanter, Congrès de la Société francaise d'imagerie pédiatrique et prénatale, Toulouse, France, 23-24th Sept. 2016

93. "Breaking Time and Space Barriers of Ultrasound Imaging: implications in Neuroscience""
M. Tanter, **Keynote Lecture** of the 25th Congress of the Brazilian Congress on Biomedical Engineering, Iguazu, Brazil, Oct. 2016

94. "New perspectives in Medical Ultrasound"
M. Tanter, Journées de la société française de pathologie, Palais des congrès, Paris, France, Nov. 2016

95. "Innovations in medical imaging of neonates"
M. Tanter, Journées Francophones de Recherche en Néonatalogie, Paris, France, Dec. 2016

96. "Ultrafast Ultrasound Imaging"
M. Tanter, **Plenary Lecture** of the 7th World Molecular Imaging Conference, Philadelphia, USA, Sept. 2017

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**Expertise and Scientific animation**

-Member of the AERES committee for laboratories evaluation :
- CNRS Lab. P. Laugier, Paris 6, 2009
- INSERM Lab. H. Benali, Paris 6, 2009
- Inserm Lab. D. Guilloteau, Tours, 2010
- Inserm Lab. Irène Buvat, Orsay, 2013
- Inserm Lab, Serge Mordon, Nancy, 2014
- Creatis Institute. I. Magnin, Lyon, 2015
- TIMC-IMAG Laboratory, P. Cinquin, Grenoble, 2015
- LTSI, Rennes, L. Sehnabi 2015

- President of the AERES committee for french laboratories evaluation :
- Inserm Lab J. Y Chapelon, 2011

- Member of the scientific board of Region Ile de France 2011-2015
- Member of the scientific board of the french company Caviskills since 2013
- President of the jury of SESAME projects, Region Ile de France, in 2012 (25 M€)
- President of the jury of PICRI projects, Region Ile de France, in 2012 (8 M€)
- Member of the jury for the D.I.M. selection, Region Ile de France, in 2012 (>200 M€)

- Member of the admission jury for Inserm Research Directors in 2012
- Member of the INSERM CSS8 committee for the period 2012-2017
- Member of the scientific committee of GDR Imagiv
- Expertises for ANR, Focused Ultrasound Surgery Foundation (USA),

- Scientific Chair of the international MR-guided Focused Ultrasound Symposium in Washington DC, 2010.

- President of the Conference IMAGIV in Dec. 2011, Paris (>200 participants)
- Co-organizer of Workshop "Imaging in complex media" 2005, Cargese, France
- Co-organizer of Workshop "Imaging in complex media" 2003, Cargese, France
- Member of the Program Committee of IEEE IUS (International Ultrasonics symposium): scientific organisation of IEEE IUS symposiums from 2008 to 2013
- Elected Member of the Administrative Committee (ADCOM) of UFFC society 2011-2014
- Co-organizer of the France Life Imaging workshop on Medical Ultrasound, Paris, November 2014.

- Course on "Time reversal Imaging" with M. Fink (4 hours) at IEEE Ultrasonics Conference (>1000 participants), Roma, 2009.
- Course on "Ultrasfast Ultrasound Imaging" with M. Fink (4 hours) at IEEE Ultrasonics Conference (>1000 participants), Dresden, 2012.
- Course on "Ultrasfast Ultrasound Imaging" with M. Fink (4 hours) at Joint IEEE Ultrasonics, Ferroelectrics and Frequency Control Conference (>2000 participants), Prague, 2013.
- Course on "Ultrasfast Ultrasound Imaging" with M. Fink (4 hours) at Joint IEEE Ultrasonics, Ferroelectrics and Frequency Control Conference (>1200 participants), Chicago 2014.

**Public Media communications**

- *Les Innovateurs de la santé*, Journées Nationales de l'Innovation en Santé, Janvier 2016
- Article "Huffington Post", *Comment seront les échographes du futur?*
- Colloque des 50 ans de l'Inserm, Avril 2014, *Médecine exponentielle et révolution ultrasonore*
- Radio Emission "France Inter", "Le téléphone sonne", *50 ans d'Inserm : Comment vivrons nous dans 50 ans?*
- Le Monde, Avril 2009, *Une start-up refonde l'industrie française de l'imagerie medicale*
- Le journal du CNRS, Nov. 2008 *De bonnes ondes pour l'imagerie médicale*
- Physics World, July 2004 *Supersonic boom for ultrasound*
- Physics World, March 2004 *Ultrasound imaging goes supersonic*

## National and International Grants Obtained in the last six years

**ERC Advanced Grant 2013 EU.** Project FUSIMAGINE "A new neuroimaging modality from bench to bedside"
(2.5 M€, 5 Years). Principal Investigator

**ERC Synergy Grant 2013 EU.** Project HELMHOLTZ
(12 M€, 7 Years). Ultrasound Imaging - Workpackage Leader

**Contract EQUIPEX (Equipement d'excellence)** (2011-2018)- Projet ULTRABRAIN (**2.8 MEuros**, 8 years)
"Treatment of Brain disorders using transcranial High Intensity focused Ultrasound (HIFU)"
Scientific Principal Investigator

**Contract ANR Technologies de la Santé (TECSAN)** – Projet CardioUSgHIFU 2011-2014 (**910 kEuros**, 3 Yrs)
« Ultrasound guided Cardiac ablation using High Intensity Focused Ultrasound»
Scientific Principal Investigator

**Industrial Contract in Ultrasound Elastography** (coll. with SuperSonic Imagine) (2006-2014)

Scientific Principal Investigator, **420 kEuros**.

**Industrial Contract in Cosmetics** (coll. with a big cosmetics company (2014)

Scientific Principal Investigator, **240 kEuros**.

**Contract ANR Technologies de la Santé (TECSAN)** – Projet UltraCardio 2008-2010
« Ultrafast Imaging and Elastography for cardiovascular applications »
(**900 kEuros** 2 years)
Scientific Principal Investigator

**Contract Focused Ultrasound Surgery Foundation, Charlottesville, USA.** Project on Transcranial Adaptive focusing for Brain Therapy - 2011
(**100 kEuros** 1 year)
Scientific Principal Investigator

**Contract ANR Technologies de la Santé (TECSAN)** – Projet TUCCIRM 2006-2009
(**980 kEuros**, 3 Yrs)
« MR-Guided Transcranial Brain Ultrasound therapy »
Scientific Principal Investigator

**Contract ANR Technologies de la Santé (TECSAN)** – Projet MICROELASTO 2009-2011
(**970 kEuros**, 3 Yrs)
« MicroElastography »
Scientific Principal Investigator

**Contract Fondation Pierre Gilles De Gennes, Paris, France** – Projet "Targeted Ultrasonic Time Reversal Therapy" 2008-2010
(**325 kEuros**, 3 Yrs)
Scientific Principal Investigator

**Contract Pole de Compétitivité MEDICEN** (Depuis Janvier 2007)- Projet DARMUS
(**1.7 MEuros**, 3 years) 2006-2009
"Comparison of breast Elastography using Ultrasound and MR"
Head of one team (**600 kEuros**)

**Interface Contract INSERM** 2006-2009 (Collaboration with Institut Curie, Département de Radiologie, Paris, France)
**100 kEuros**
Scientific Principal Investigator

**Industrial Contract in Ultrasound Therapy** (coll. with SuperSonic Imagine) (2007-2011)

Scientific Principal Investigator, **320 kEuros**.