

## Takuya Sakamoto

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2167 Shosha, Himeji  
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Kyoto University  
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606-8501 Japan

### Research Area

Ultra-wideband radar signal processing

### Ph.D. Thesis Title

Nonparametric Imaging Algorithms for UWB Pulse Radars

### Educational Background

2005	Ph.D., Communications and Computer Engineering, Grad. School of Informatics, Kyoto University Thesis Advisor: Toru Sato
2002	M.Eng., Communications and Computer Engineering, Grad. School of Informatics, Kyoto University
2000	B.Eng., Electrical and Electronic Engineering, Kyoto University

### Professional Employment

Associate Professor, Univ. of Hyogo, Grad. School of Engineering, Himeji, Japan	Apr. 2015 - present
Part-time Researcher, Kyoto University, Grad. School of Informatics, Kyoto, Japan	Apr. 2015 - present
Visiting Researcher, Delft University of Technology, Delft, The Netherlands	Aug. 2016 - Sep. 2016
Visiting Researcher, Delft University of Technology, Delft, The Netherlands	Mar. 2016
Visiting Researcher, Delft University of Technology, Delft, The Netherlands	Sep. 2015
Assistant Professor, Kyoto University, Grad. School of Informatics, Kyoto, Japan	Apr. 2007 - Mar. 2015
Visiting Researcher, Delft University of Technology, Delft, The Netherlands	Sep. 2011 - Nov. 2013
Visiting Researcher, University of Nice Sophia-Antipolis, Antibes, France	Sep. 2009
Research Associate, Kyoto University, Grad. School of Informatics, Kyoto, Japan	Apr. 2006 - Mar. 2007
Postdoc Researcher, Kyoto University, Grad. School of Informatics, Kyoto, Japan	Apr. 2005 - Mar. 2006
Lecturer, Kyoto University, Grad. School of Engineering, Kyoto, Japan	Feb. 2005 - Mar. 2005

### Awards

2016	Masao Horiba Award
2016	Encouragement Award from IEICE Kansai Section Student Branch Technical Meeting
2015	Achievement Award, Institute of Electronics, Information and Communication Engineers
2012	Best Paper Award, International Symposium on Antennas and Propagation
2007	Young Researchers Award, Institute of Electronics, Information and Communication Engineers
2007	Best Presentation Award, Institute of Electrical Engineers of Japan

2007	Best Paper Award, IEICE Communications Society
2007	Best Student Paper Award, International Conference on Ultra-Wideband
2004	Best Paper Award, International Symposium on Antennas and Propagation

### **Professional Service**

Secretary	IEEE Antennas and Propagation Society Kansai Joint Chapter	2016-present
Associate Editor	IEICE Electronics Express	2016-present
Steering Committee Member	IEICE Kansai Section	2015-present
Convened Session Organizer	European Conference on Antennas and Propagation	2015-2016
Guest Associate Editor	IEICE Trans. Electronics Special Issue	2015-2016
Treasurer	IEEE Antennas and Propagation Society Kansai Chapter	2015-2016
Organizer	Kyoto University and the University of Twente Joint Research Meeting	2014
Session Chair	European Conference on Antennas & Propagation	2013
Editorial Board Member	International Scholarly Research Notices Communications and Networking	2011-2013
Session Chair	International Symposium on Antennas and Propagation	2010
Session Chair	Asia Pacific Microwave Conference	2010
Session Chair	European Conference on Antennas & Propagation	2010
Review Committee	Asia Pacific Microwave Conference	2010
Session Chair	Progress in Electromagnetics Research Symposium	2009
Session Chair	IEEE International Symposium on Antennas and Propagation	2008
Review Committee	IEICE Transactions on Communications	2006-Present
Assistant secretary	IEEJ Technical committee on electromagnetic theory	2006-2008

### **Invited Seminars**

University of Limoges, France	June 2015
University of Duisburg-Essen, Germany	Nov. 2013
University of Twente, the Netherlands	Nov. 2013
California Institute of Technology, CA	July 2011
University of Nice Sophia-Antipolis, France	Apr. 2011

### **Invited Talks**

Semi-Plenary Talk at European Conference on Antennas and Propagation	March 2017
Progress in Electromagnetics Research Symposium	July 2015
XXXIth URSI General Assembly and Scientific Symposium	Aug. 2014

### **Publications**

#### **Refereed Journal Articles**

- 1) Takuya Sakamoto, Daisuke Umehara, Yoshiteru Morihira and Makoto Kawai, "A synchronization method for synchronous CDMA broadband communication systems with GEO satellites," IEICE Trans. on Communications, vol. E87-B, no. 8, pp. 2111-2118, Aug. 2004.
- 2) Takuya Sakamoto and Toru Sato, "A target shape estimation algorithm for pulse radar systems based on boundary scattering transform," IEICE Trans. on Communications, vol. E87-B, no.5, pp.1357-1365, May 2004.
- 3) Takuya Sakamoto and Toru Sato, "An estimation algorithm of target location and scattered waveforms for UWB pulse radar systems," IEICE Trans. on Communications, vol. E87-B, no.6, pp.1631-1638, June 2004.
- 4) Takuya Sakamoto and Toru Sato, "A phase compensation algorithm for high-resolution pulse radar systems," IEICE Trans. on Communications, vol. E87-B, no. 11, pp. 3314-3321, Nov. 2004.
- 5) Toru Sato and Takuya Sakamoto, "Image reconstruction algorithms for UWB pulse radar systems," IEICE Trans. Japanese Edition, vol.J88-B, no.12, pp.2311-2325, Dec. 2005.
- 6) Shouhei Kidera, Takuya Sakamoto, Satoshi Sugino and Toru Sato, "An accurate imaging algorithm with scattered waveform estimation for UWB pulse radars," IEICE Trans. on Communications, vol.E89-B, no.9, pp.2588-2595, Sep. 2006.
- 7) Takuya Sakamoto, Shouhei Kidera, Toru Sato, Satoshi Sugino, "An experimental study on a fast 3-D imaging algorithm for UWB pulse radars," IEICE Trans. Japanese edition, vol.J90-B, no.1, pp.66-73, Jan. 2007 (In Japanese) .
- 8) Takuya Sakamoto, "A 2-D image stabilization algorithm for UWB pulse radars with fractional boundary scattering transform," IEICE Trans. on Communications, vol.E90-B, no.1, pp.131-139, Jan. 2007.
- 9) Takuya Sakamoto, "2A fast algorithm for 3-dimensional imaging with UWB pulse radar systems," IEICE Trans. on Communications2, vol.E90-B, no.3, pp.636-644, Mar. 2007.
- 10) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A high-resolution imaging algorithm without derivatives based on waveform estimation for UWB radars," IEICE Trans. on Communications,

vol.E90-B, no.6, pp.1487-1494, June 2007.

- 11) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A robust and fast imaging algorithm with an envelope of circles for UWB pulse radars," IEICE Trans. on Communications, vol.E90-B, no.7, pp.1801-1809, July 2007.
- 12) Kentaro Isoda, Takuya Sakamoto and Toru Sato, "Effective echo detection and accurate orbit estimation algorithms for space debris radar," IEICE Trans. on Communications, vol.E91-B, no.3, pp.887-895, Mar. 2008.
- 13) Shouhei Kidera, Yusuke Kani, Takuya Sakamoto and Toru Sato, "A fast and high-resolution 3-D imaging algorithm with linear array antennas for UWB pulse radars," IEICE Trans. on Communications, vol.E91-B, no.8, pp.2683-2691, Aug. 2008.
- 14) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "High-resolution and real-time 3-D imaging algorithm with envelope of spheres for UWB radars," IEEE Trans. on Geoscience and Remote Sensing, vol.46, no.11, pp.3503-3513, Nov. 2008.
- 15) Takuya Sakamoto and Toru Sato, "2-dimensional imaging for human bodies with UWB radar using approximately uniform walking motion along a straight line with the SEABED algorithm," IEICE Trans. on Communications, vol.E91-B, no.11, pp.3695-3703, Nov. 2008.
- 16) Takuya Sakamoto and Toru Sato, "Code-division multiple transmission for high-speed UWB radar imaging with an antenna array," IEEE Trans. on Geoscience and Remote Sensing, vol.47, no.4, pp.1186-1179, Apr. 2009.
- 17) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "High-resolution 3-D imaging algorithm with envelope of modified spheres for UWB through-the-wall radars," IEEE Trans. on Antennas & Propagation, vol.57, no.11, pp. 3520-3529, Nov. 2009.
- 18) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "Accurate UWB radar 3-D imaging algorithm for complex boundary without range points connections," IEEE Trans. on Geoscience and Remote Sensing, vol.48, no.4, pp.1993-2004, Apr. 2010.
- 19) Tomoki Kimura, Hirofumi Taki, Takuya Sakamoto and Toru Sato, "Experimental study of high range resolution medical acoustic imaging for multiple target detection with frequency domain interferometry," Japanese Journal of Applied Physics, vol.48, no.7, 07GJ07, July 2009.
- 20) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru Sato, "Calculus detection for ultrasonography using decorrelation of forward scattered wave," J. Med. Ultrasonics, vol.37, no.3, pp.129-135, 2010.
- 21) Yuji Matsuki, Takuya Sakamoto and Toru Sato, "An imaging algorithm of a target with arbitrary motion for ultra wide-band radar with a small number of antennas," IEICE Trans. on Communications, vol.E94-B, no.03, pp.742-749, Mar. 2011.

- 22) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina, Kenichi Nagae and Toru Sato, "Small calcification depiction in ultrasound B-mode images using decorrelation of echoes caused by forward scattered waves," J. Med. Ultrasonics , vol.38, no.2, pp.73-80, 2011.
- 23) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "Super-resolution UWB radar imaging algorithm based on extended Capon with reference signal optimization," IEEE Trans. on Antennas & Propagation, vol.59, no. 5, pp. 1606 - 1615, May 2011.
- 24) Takuya Sakamoto, Hirofumi Taki and Toru Sato, "An experimental study of ultrasonic imaging with a reduced number of array elements using the envelope method," Acoustical Science and Technology (AST), the Acoustical Society of Japan, vol.32, no.4, pp.143-150, 2011.
- 25) Takuya Sakamoto and Toru Sato, "Two-dimensional ultra-wide-band radar imaging of a target with arbitrary translation and rotation," IEEE Trans. on Geoscience and Remote Sensing, vol.49, no.11, pp.4493-4502, Nov. 2011.
- 26) Shuhei Fujita, Takuya Sakamoto and Toru Sato, "2-dimensional accurate imaging with UWB radar using indoor multipath echoes for a target in shadow regions," IEICE Trans. on Communications, vol.E94-B, no.8, pp.2366-2374, Aug. 2011.
- 27) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "Extended imaging algorithm based on aperture synthesis with double scattered waves for UWB radars," IEEE Trans. on Geoscience and Remote Sensing, vol. 49, no. 12, pp. 5128-5139, Dec. 2011.
- 28) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru Sato, "Ultrasound phantom using thin wires for the depiction of calcification - comparison of cross-sections of wire targets and mass targets," IEEEJ Trans. on Electronics, Information and Systems, vol.131, no.9, pp.1528-1534, 2011.
- 29) Hirofumi Taki, Kousuke Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina, Motoi Kudo and Toru Sato, "High range resolution ultrasonographic vascular imaging using frequency domain interferometry with the Capon method," IEEE Trans. on Med. Imaging, vol.31, no.2, pp. 417-429, 2012.
- 30) Kenshi Saho, Tomoki Kimura, Shouhei Kidera, Hirofumi Taki, Takuya Sakamoto and Toru Sato, "Robust and Accurate Ultrasound 3-D Imaging Algorithm Incorporating Adaptive Smoothing Techniques," IEICE Trans. Communications, Vol. E95-B, No. 2, pp.572-580, Feb. 2012.
- 31) Takuya Sakamoto, Yuji Matsuki and Toru Sato, "Method for the three-dimensional imaging of a moving target using an ultra-wideband radar with a small number of antennas," IEICE Trans. on Communications, vol. E95-B, no. 3, pp. 972-979, March 2012.
- 32) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru Sato, "High

- resolution ultrasound imaging using frequency domain interferometry — suppression of interference using adaptive frequency averaging —,” IEEJ Trans. on Electron. Inf. Syst., vol.132, no.10, pp.1552-1557, 2012.
- 33) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru Sato, “Small calcification indicator in ultrasonography using correlation of echoes with a modified Wiener filter,” Journal of Medical Ultrasonics, vol.39, pp.127-135, 2012.
  - 34) Kenshi Saho, Takuya Sakamoto Toru Sato, Kenichi Inoue, and Takeshi Fukuda, “Pedestrian imaging using UWB Doppler radar interferometry,” IEICE Trans. on Communications, vol. E96-B, no. 2, pp. 613-623, Jul. 2013.
  - 35) Kenshi Saho, Takuya Sakamoto, Toru Sato, Kenichi Inoue and Takeshi Fukuda, “Accurate and real-time pedestrian classification based on UWB Doppler radar images and their radial velocity features,” IEICE Trans. on Communications, vol. E96-B, no. 10, pp.2563-2572, Oct. 2013.
  - 36) Kenshi Saho, Hiroaki Homma, Takuya Sakamoto, Toru Sato, Kenichi Inoue, and Takeshi Fukuda, “Accurate Image Separation Method for Two Closely Spaced Pedestrians Using UWB Doppler Imaging Radar and Supervised Learning,” IEICE Trans. Communications, (accepted and in press).
  - 37) Hirofumi Taki, Shinya Tanimura, Takuya Sakamoto, Tsuyoshi Shiina and Toru Sato, "Accurate ultrasound imaging based on Range Point Migration method for the depiction of fetal surface," J. Med. Ultrasonics, DOI10.1007/s10396-014-0574-4, Sep. 2014.
  - 38) Takuya Sakamoto, Toru Sato, Pascal J. Aubry, and Alexander G. Yarovoy, “Texture-Based Automatic Separation of Echoes from Distributed Moving Targets in UWB Radar Signals,” IEEE Transactions on Geoscience and Remote Sensing, Vol. 53, No. 1, pp.352-361, January 2015.
  - 39) Takuya Sakamoto, Toru Sato, Pascal Aubry, and Alexander Yarovoy, "Ultra-Wideband Radar Imaging using a Hybrid of Kirchhoff Migration and Stolt F-K Migration with an Inverse Boundary Scattering Transform," IEEE Transactions on Antennas and Propagation, vol.63, no.8, pp.3502-3512, Aug. 2015.
  - 40) Takuya Sakamoto, Hiroki Yamazaki, and Toru Sato, "Two-dimensional imaging of a pedestrian using multiple wideband Doppler interferometers with clustering-based echo association," IEICE Transactions on Communications, vol. E98-B, no. 9, pp. 1795-1803, Sep. 2015.
  - 41) Yuan He, Pavlo Molchanov, Takuya Sakamoto, Pascal Aubry, Francois Le Chevalier, and Alexander Yarovoy, "Range-Doppler Surface: A Tool to Analyze Human Target in Ultra-Wideband Radar," IET Radar, Sonar & Navigation, vol. 9, no. 9, pp. 1240-1250, DOI: 10.1049/iet-rsn.2015.0065, Dec. 2015.
  - 42) Hiroki Yamazaki, Takuya Sakamoto, Hirofumi Taki, and Toru Sato, "False image suppression in

two-dimensional shape estimates of a walking human using multiple ultra-wideband Doppler radar interferometers," *IEICE Transactions on Communications*, vol. E99-B, no. 1, pp. 134-142, Jan. 2016.

- 43) Takuya Sakamoto, Ryohei Imasaka, Hirofumi Taki, Toru Sato, Mototaka Yoshioka, Kenichi Inoue, Takeshi Fukuda, and Hiroyuki Sakai, "Feature-based Correlation and Topological Similarity for Interbeat Interval Estimation using Ultra-Wideband Radar," *IEEE Transactions on Biomedical Engineering*, vol. 63, no. 4, pp. 747-757, April 2016.
- 44) Takuya Sakamoto, Toru Sato, Pascal Aubry, and Alexander Yarovoy, "Fast Imaging Method for Security Systems using Ultra-Wideband Radar," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 52, no. 2, pp. 658-670, April 2016.
- 45) Thomas Fromenteze, Ettien Kpre, David Carsenat, Cyril Decroze, and Takuya Sakamoto, "Single-shot compressive multiple-inputs multiple-outputs radar imaging using a two-port passive device," *IEEE Access*, vol. 4, pp. 1050-1060, March 2016.
- 46) Motoshi Anabuki, Shigeaki Okumura, Takuya Sakamoto, Kenshi Saho, Toru Sato, Mototaka Yoshioka, Kenichi Inoue, Takeshi Fukuda, and Hiroyuki Sakai, "Ultra-wideband radar imaging using adaptive array and Doppler separation," *IEEE Transactions on Aerospace and Electronic Systems*, (accepted).
- 47) Takuya Sakamoto, Daichi Akiyama, Takuro Sato, and Toru Sato, "Spectrum-free estimation of Doppler velocities using ultra-wideband radar," *IEEE Access* (accepted).
- 48) Takuya Sakamoto, Akihiko Matsuoka, and Hidekuni Yomo, "Estimation of Doppler velocities from sub-Nyquist ultra-wideband radar measurements," *IEEE Sensors Journal* (accepted).

### **Refereed Journal Letters**

- 1) Takuya Sakamoto, Ryohei Imasaka, Hirofumi Taki, Toru Sato, Mototaka Yoshioka, Kenichi Inoue, Takeshi Fukuda, and Hiroyuki Sakai, "Accurate heartbeat monitoring using ultra-wideband radar," *IEICE Electronics Express*, vol. 12, no. 3, pp.20141197, 2015.
- 2) Takuya Sakamoto, Shigeaki Okumura, Ryosuke Imanishi, Hirofumi Taki, Toru Sato, Mototaka Yoshioka, Kenichi Inoue, Takeshi Fukuda, and Hiroyuki Sakai, "Remote heartbeat monitoring from human soles using 60-GHz ultra-wideband radar Accurate heartbeat monitoring using ultra-wideband radar," *IEICE Electronics Express*, vol. 12, no. 21, pp. 20150786, 2015.[PDF]
- 3) Shigeaki Okumura, Takuya Sakamoto, Toru Sato, Mototaka Yoshioka, Kenichi Inoue, Takeshi Fukuda, and Hiroyuki Sakai, "Comparison of clutter rejection techniques for measurement of small displacements of body surface using radar," *Electronics Letters*, DOI: 10.1049/el.2016.1461,

2016.

### **Refereed Conference Articles**

- 1) Takuya Sakamoto and Toru Sato, "An estimation method of target location and scattered waveforms for UWB pulse radar systems," Proc. 2003 IEEE International Geoscience and Remote Sensing Symposium, pp. 4013-4015, July 2003.
- 2) Takuya Sakamoto and Toru Sato, "Fast imaging of a target in inhomogeneous media for pulse radar systems," Proc. 2004 IEEE International Geoscience and Remote Sensing Symposium, vol.3, pp.2070-2073, Sep. 2004.
- 3) Takuya Sakamoto and Toru Sato, "A fast algorithm of 3-dimensional imaging for pulse radar systems," Proc. 2004 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting, vol. 2, pp. 2099-2102, June 2004.
- 4) Takuya Sakamoto and Toru Sato, "A phase compensation algorithm for high-resolution pulse radar systems," Proc. 2004 International Symposium on Antennas and Propagation, pp.585-588, Aug. 2004.
- 5) Takuya Sakamoto, Shouhei Kidera, Toru Sato, Tomohiko Mitani and Satoshi Sugino, "An experimental study on a fast imaging algorithm for UWB pulse radar systems," Proc. 2005 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting, P24.5, July 2005.
- 6) Takuya Sakamoto, Shouhei Kidera, Toru Sato, Tomohiko Mitani and Satoshi Sugino, "An experimental study on a fast and accurate 3-d imaging algorithm for UWB pulse radar systems," Proc. XXVIIIth General Assembly of International Union of Radio Science, F05.7, Oct. 2005.
- 7) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A high-resolution imaging algorithm based on scattered waveform estimation for UWB pulse radar systems," Proc. 2005 IEEE International Geoscience and Remote Sensing Symposium, pp.1725-1728, July 2005.
- 8) Takuya Sakamoto and Toru Sato, "A fast imaging for UWB pulse radars, Proc. Inverse Problems in Applied Sciences, Hokkaido Univ. Technical Report Series in Mathematics," no.109, pp. 20, July 2006.
- 9) Takuya Sakamoto and Toru Sato, "An image stabilization algorithm for UWB pulse radars with fractional boundary scattering transform, Proc. IEEE AP-S International Symposium," USNC/URSI National Radio Science Meeting, AMEREM Meeting, pp.1399-1402, July 2006.
- 10) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A high-resolution 3-d imaging algorithm with linear array antennas for UWB pulse radar systems," Proc. IEEE AP-S International Symposium,

USNC/URSI National Radio Science Meeting, pp.1057-1060, July 2006.

- 11) Takuya Sakamoto and Toru Sato, "A stable and fast 3-d imaging algorithm for UWB pulse radars with fractional boundary scattering transform," Proc. Progress in Electromagnetics Research Symposium, Aug. 2006.
- 12) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A robust and fast imaging algorithm with an envelope of circles for UWB pulse radars," Proc. Progress in Electromagnetics Research Symposium, Aug. 2006.
- 13) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A robust and fast imaging algorithm without derivative operations for UWB pulse radars," Proc. European Conference on Antennas & Propagation (EuCAP) 2006, paper no.314368, Nov. 2006.
- 14) Takuya Sakamoto, Shouhei Kidera, Toru Sato and Satoshi Sugino, "An edge-preserving stabilization for a fast 3-d imaging algorithm with a UWB pulse radar," Proc. European Conference on Antennas & Propagation (EuCAP) 2006, paper no. 306687, Nov. 2006.
- 15) Kentaro Isoda, Takuya Sakamoto and Toru Sato, "An effective orbit estimation algorithm for a space debris radar using the quasi-periodicity of the evaluation function," Proc. European Conference on Antennas & Propagation (EuCAP) 2006, paper no.345341, Nov. 2006.
- 16) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A high-resolution imaging algorithm without derivatives based on waveform estimation for UWB pulse radars," Proc. IEEE AP-S International Symposium, June 2007.
- 17) Takuya Sakamoto and Toru Sato, "Code-division multiple transmission for high-speed UWB radar imaging with an antenna array," Proc. IEEE AP-S International Symposium 2007, June 2007.
- 18) Takuya Sakamoto and Toru Sato, "Real-time imaging of human bodies with UWB radars using walking motion," Proc. 2007 IEEE International Conference on Ultra-WideBand (ICUWB2007), Sep. 2007.
- 19) Shouhei Kidera, Yusuke Kani, Takuya Sakamoto and Toru Sato, "An experimental study for a high-resolution 3-D imaging algorithm with linear array for UWB radars," Proc. 2007 IEEE International Conference on Ultra-WideBand (ICUWB2007), Sep. 2007.
- 20) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "A robust and fast 3-D imaging algorithm without derivative operations for UWB radars," Proc. EMTS 2007 (International Symposium on Electromagnetic Theory) URSI Commission B, July 2007.
- 21) Shouhei Kidera, Takuya Sakamoto and Toru Sato, "Fast and high-resolution 3-D imaging algorithm with spectrum shift for UWB pulse radars," Proc. European Conference on Antennas & Propagation (EuCAP) 2007, paper no.Th4.11.4, Nov. 2007.
- 22) Takuya Sakamoto, Kunihiko Teshima and Toru Sato, "Estimation method of quasi-wavefronts

- for UWB radar imaging with LMS filter and fractional boundary scattering transform,” Proc. Progress in Electromagnetics Research Symposium, Mar. 2008.
- 23) Takuya Sakamoto, Hiroshi Matsumoto and Toru Sato, “A high-resolution imaging algorithm for complex-shaped target shapes by optimizing quasi-wavefronts,” Proc. IEEE AP-S International Symposium 2008, IF516.5, July 2008.
  - 24) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “High-resolution 3-d imaging algorithm without derivative operations for UWB through-the-wall radars,” Proc. IEEE AP-S International Symposium 2008, IF216.9, July 2008.
  - 25) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “High-speed UWB radar imaging algorithm for complex target boundary without wavefront connections,” Proc. The XXIX General Assembly of the International Union of Radio Science (URSI), Aug. 2008.
  - 26) Takuya Sakamoto and Toru Sato, “A study on fast imaging for walking human bodies by UWB radar with realistic motion model,” Proc. 2008 IEEE International Conference on Ultra-Wide-Band (ICUWB2008), Sep. 2008.
  - 27) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “An experimental study of high-resolution 3-d imaging algorithm with envelope of modified spheres for UWB through-the-wall radars,” Proc. International Symposium on Antennas and Propagation, Oct. 2008.
  - 28) Takuya Sakamoto, Hiroshi Matsumoto and Toru Sato, “3-D fast imaging method for UWB radar in interference-rich environments with global optimization,” Proc. Workshop for Space, Aeronautical and Navigational Electronics, Nov. 2008.
  - 29) Kenshi Saho, Tomoki Kimura, Shouhei Kidera, Hirofumi Taki, Takuya Sakamoto and Toru Sato, “Experimental study of robust and high-resolution ultrasound imaging algorithm with adaptive smoothing techniques,” Proc. Workshop for Space, Aeronautical and Navigational Electronics, Nov. 2008.
  - 30) Tomoki Kimura, Hirofumi Taki, Takuya Sakamoto and Toru Sato, “Experimental study of high range resolution medical acoustic imaging for multiple target detection with frequency domain interferometry,” Proc. The 29th Symposium on Ultrasonic Electronics (USE2008), Nov. 2008.
  - 31) Takuya Sakamoto and Toru Sato, “Time-reversal UWB imaging with a single antenna in multipath environments,” Proc. 3rd European Conference on Antennas & Propagation, Mar. 2009.
  - 32) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “Shadow region imaging algorithm with aperture synthesis of multiple scattered waves for UWB radars,” Proc. IEEE AP-S International Symposium 2009, June 2009.
  - 33) Hirofumi Taki, Tomoki Kimura, Takuya Sakamoto and Toru Sato, “High resolution medical

- acoustic vascular imaging using frequency domain interferometry,” Proc. The Ninth IASTED International Conference on Visualization, Imaging and Image Processing, July 2009.
- 34) Takuya Sakamoto, Hirofumi Taki and Toru Sato, “Experimental study on high resolution techniques for high-speed imaging of human bodies,” Proc. Progress in Electromagnetics Research Symposium (PIERS), pp.596-600, Aug. 2009.
  - 35) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “Experimental study of shadow region imaging algorithm with multiple scattered waves for UWB radars,” Proc. Progress in Electromagnetics Research Symposium, Aug. 2009.
  - 36) Takuya Sakamoto, Yuji Matsuki and Toru Sato, “A novel UWB radar 2-D imaging method with a small number of antennas for targets with arbitrary shapes and motion,” Proc. 2009 IEEE International Conference on Ultra-WideBand, pp.449-453, Sep. 2009.
  - 37) Hirofumi Taki, Takuya Sakamoto, Toru Sato, Makoto Yamakawa and Tsuyoshi Shiina, “Small calculus detection for medical acoustic imaging using cross-correlation between echo signals,” Proc. 2009 IEEE International Ultrasonics Symposium, Sep. 2009.
  - 38) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “Super-resolution UWB radar imaging algorithm based on extended Capon with reference signal optimization,” Proc. the Fourth European Conference on Antennas and Propagation, Apr. 2010.
  - 39) Takuya Sakamoto and Toru Sato, “A method of estimating a room shape with a single antenna in a multipath environment,” Proc. the Fourth European Conference on Antennas and Propagation, Apr. 2010.
  - 40) Takuya Sakamoto, Toru Sato, Anthony Cresp, Ioannis Aliferis, Jean-Yves Dauvignac and Christian Pichot, “An experimental study on multi-static ultra wideband radar imaging with SEABED and synthetic aperture,” Proc. The 26th International Review of Progress in Applied Computational Electromagnetics, in conjunction with RFIDay 2010, Apr. 2010.
  - 41) Takuya Sakamoto and Toru Sato, “A target tracking method with a single antenna using time-reversal UWB radar imaging in a multi-path environment,” Proc. the 2010 IEEE International Geoscience and Remote Sensing Symposium, pp.3319-3322, July 2010.
  - 42) Shouhei Kidera, Takuya Sakamoto and Toru Sato, “Experimental study on super-resolution 3-d imaging algorithm based on extended Capon with reference signal optimization for UWB radars,” Proc. 2010 International Symposium on Electromagnetic Theory, Aug. 2010.
  - 43) Hirofumi Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru Sato, “Small calcification detection for ultrasonography using decorrelation between raw ultrasonographic data,” Proc. Biomedical Engineering International Conference, 2010-39, Aug. 2010.
  - 44) Hirofumi Taki, Kousuke Taki, Takuya Sakamoto, Makoto Yamakawa, Tsuyoshi Shiina and Toru

- Sato, "High range resolution medical acoustic vascular imaging with frequency domain interferometry," Proc. IEEE Engineering in Medicine and Biology Society, pp. 5298-5301, Sep. 2010.
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