WON-KWANG PARK

Curriculum Vitae ⋄ Resumé

Official Information

Full Professor
Department of Information Security, Cryptology, and Mathematics
College of Science and Technology, Kookmin University
77, Jeongneung-ro, Seongbuk-gu, Seoul, 02707, Korea
Phone: (+82) 2 910 5748, Fax: (+82) 2 910 4739
E-mail: parkwk@kookmin.ac.kr
Personal Webpage: https://sites.google.com/view/parkwk/
Office: No. 714, Building E4, Kookmin University
Scientific Computing Lab: No. 214, Building N6, Kookmin University

Personal Information

Born April 7, 1975, in Seoul, Republic of Korea.

Research Interests

Inverse problems, Microwave imaging, Non-destructive evaluations, Scientific computing.

Education

Doctor of Philosophy September 2006 – February 2009

- Centre de Mathématiques Appliquées (CMAP, CNRS – X), École Polytechnique
- In cooperation with Laboratoire des Signaux et Systèmes (L2S), École Supérieure d'Électricité (Supélec)
- Thesis title (Français): Diffraction inverse par des inclusions minces et des fissures
- Thesis title (English): Inverse scattering from two-dimensional thin inclusions and cracks
- Advisors: Habib Ammari and Dominique Lesselier
- Jury members: Elena Beretta (Rapporteur), Oliver Dorn (Rapporteur), François Jouve (Président), Roman Novikov (Examinateur), and Knut Sølna (Examinateur).
- Appreciation: Très honorable (highly honorable).

Master Degree September 2002 – August 2004

- Department of Mathematics, Yonsei University
- Thesis title: Partial differential equations in image processing
- Advisor: Jin Keun Seo

Bachelor Degree March 1994 – August 2000

- Department of Mathematical Education, Kookmin University

Employments

Kookmin University

- Full Professor, Department of Information Security, Cryptology, and Mathematics — Since March 2020
- Adjunct Professor, Graduated School of Education — March 2020 – February 2022
- Associate Professor, Department of Mathematics — March 2015 – February 2020
- Assistant Professor, Department of Mathematics — March 2012 – February 2015
- Full-Time Lecturer, Department of Mathematics — March 2010 – February 2012

Karl Franzens Universität Graz

- Postdoctoral Researcher, Institute of Mathematics and Scientific Computing — July 2009 – December 2009
- Advisor: Karl Kunisch

Awards

Best Paper Awards

- Conférence annuelle de l'ASCoF 2008.

- Conférence annuelle de l'ASCoF 2009 (with Hyundae Lee).
- EKC 2009 (with Dominique Lesselier).
- The 14th ICFICE, 2022 (with Seongje Chae and Young-Deuk Joh).

Best Poster Awards

- Spring conference of the KSIAM 2013 (with Young-Deuk Joh).
- Annual meeting of the KSIAM 2013 (with Young-Deuk Joh and Young Mi Kwon).
- Summer conference of the KIEES 2015 (with Jung Ho Park).
- Summer conference of the KIEES 2016 (with Hyeoncheol Jo, Kyungrok Lee, and Young-Deuk Joh).
- EKC 2022 (with Seongje Chae).
- Summer conference of the KIEES 2022 (with Seongje Chae and Sangwoo Kang).

Excellence in Academic Research Support Projects

- 2020 Top 50 Excellence Researches in Academic Research Support Projects.

Responsibilities & Activities

Reviewer for International Journals Since July 2009

- AIMS Mathematics, Computers & Mathematics with Applications, Digital Signal Processing
- Entropy, ESAIM: Mathematical Modeling and Numerical Analysis (M2AN), IEEE Access, IEEE Open Journal of Antennas and Propagation, IEEE Sensors Journal, IEEE Signal Processing Letters, IEEE Transactions on Computational Imaging, IEEE Transactions on Magnetics
- Inverse Problems, Inverse Problems and Imaging, Inverse Problems in Science & Engineering, IET Microwaves, Antennas & Propagation, IET Radar, Sonar & Navigation
- Journal of Computational Physics, Journal of Electromagnetic Waves and Applications, Journal of Inverse and Ill-Posed Problems
- Journal of Mathematical Imaging and Vision, Journal of Physics A: Mathematical and Theoretical, Journal of the Optical Society of America A, Journal of Vibration and Control
- Materials & Design, Mathematical Problems in Engineering, Mathematics and Computers in Simulation, Mechanical Systems and Signal Processing, Optik – International Journal for Light and Electron Optics
- Radio Science, Remote Sensing, SIAM Journal on Imaging Sciences

Invited Speaker

- Europe-Korea Conference on Science and Technology 2018 August 2018.
- IEEE AP–S Fukuoka Chapter September 2018.
- 71st Joint Conference of Electrical, Electronics and Information Engineers in Kyushu September 2018.

Academic Activities & Research Projects

Teaching Assistant

- Department of Mathematics, Yonsei University, September 2002 – February 2005.

Visiting Researches

- Centre de Mathématiques Appliquées, École Polytechnique February 2005 – January 2006.
- Department of Computational Science and Engineering, Yonsei University January – February 2010.
- Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité February 2012.
- Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité January – February 2014.
- National Institute for Mathematical Sciences February 2014 – March 2017.
- Département de Mathématiques et Applications, Ecole Normale Supérieure January 2015.
- Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité June – July 2015.
- Génie électrique et électronique de Paris, CentraleSupélec January – February 2017.
- Department of Computational Science and Engineering, Yonsei University March 2017 – February 2018.
- National Institute for Mathematical Sciences April – September 2017.
- Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité August – September 2017.
- Department of Mathematics, Eidgenössische Technische Hochschule Zürich January 2018.
- National Institute for Mathematical Sciences February 2019 – November 2020.
- Group of Electrical Engineering – Paris, CentraleSupélec, Universitaire Paris-Sud June – July 2019.
- Group of Electrical Engineering – Paris, CentraleSupélec, Universitaire Paris-Sud July – August 2022.
- Korea Advanced Institute of Science and Technology Since March 2021.

· Group of Electrical Engineering – Paris, CentraleSupélec, Universitaire Paris-Sud June – July 2023.

Research Projects

· Basic Science Research Program of the NRF May 2011 – April 2014.
· Basic Science Research Program of the NRF November 2014 – April 2017.
· Commissioned Research of the NIMS May 2015 – October 2015.
· Research & Education in Gyeonggi Science High School for the Gifted April 2017 – December 2017.
· Basic Science Research Program of the NRF (follow-up research) June 2017 – October 2020.
· A3 Foresight Program of the NRF (participating researcher) November 2017 – December 2018.
· Commissioned Research of the ETRI (participating researcher) June 2019 – November 2019.
· Basic Science Research Program of the NRF Since March 2020.

Former Tem Members

Young-Deuk Joh March 2012 – February 2015
Ph.D. Degree *Kookmin University*

· Teacher, Pyeongchon High School.
· Thesis Title: Mathematical analysis of MUSIC and subspace migration for imaging of perfectly conducting cracks and thin electromagnetic inclusions.
· Received excellent thesis prize in Graduated school.
· Received Best Poster Award in KSIAM 2013 Spring Conference.
· Received Best Poster Award in KSIAM 2013 Annual Meeting.
· Received Best Poster Award in KIEES 2015 Summer Conference.
· Received Best Paper Award in ICFICE 2022.

Seongje Chae March 2020 – February 2023
Ph.D. Degree *Kookmin University*

· Team Leader, DT Analytics, Corp. DI, CJ Cheiljedang.
· Thesis Title: Analysis and application of the orthogonality sampling method in microwave imaging.
· Received excellent thesis prize in Graduated school.
· Received Best Paper Award in ICFICE 2022.
· Received Best Poster Award in EKC 2022.
· Received Best Poster Award in KIEES 2022 Summer Conference.

Joo Young Huh March 2012 – February 2014
Master Degree *Kookmin University*

· Thesis Title: Mathematical analysis of subspace migration imaging function and its improvement.

Young Mi Kwon March 2012 – February 2014
Master Degree *Kookmin University*

· Thesis Title: Mathematical analysis of subspace migration in full- and limited-view inverse scattering problems.
· Received excellent thesis prize in Graduated school.
· Received Best Poster Award in KSIAM 2013 Annual Meeting.

Sangwoo Kang March 2011 – February 2013
Bachelor Degree *Kookmin University*

· Senior researcher at Advanced Defense Science & Technology Research Institute, Agency for Defense Development in Korea.
· Received Ph.D. degree from Génie électrique et électronique de Paris (GeePs), CentraleSupélec, Université Paris-Sud.
· Received Best Poster Award in KIEES 2015 Summer Conference.

Jung Ho Park March 2014 – August 2015
Bachelor Degree *Kookmin University*

· Ph.D. Candidate in Department of Mathematical Sciences, Seoul National University.
· Received 2015 outside achievement award in Kookmin University.
· Received Best Poster Award in KIEES 2015 Summer Conference.

Kyungrok Lee March 2016 – August 2017
Bachelor Degree *Kookmin University*

· Ph.D. Candidate in Department of Computational Science and Engineering, Yonsei University.
· Received Best Poster Award in KIEES 2016 Summer Conference.

Hyeoncheol Jo March 2016 – February 2018
Bachelor Degree *Kookmin University*

· Ph.D. Candidate in Department of Computational Science and Engineering, Yonsei University.
· Received Best Poster Award in KIEES 2016 Summer Conference.

Taekyung Ki March 2018 – February 2019
Bachelor Degree *Kookmin University*

· Received M.S. degree from Department of Mathematics, Yonsei University.

Published Research Articles

[A1] Won-Kwang Park and Dominique Lesselier, **MUSIC-type imaging of a thin penetrable inclusion from its far-field multi-static response matrix**, *Inverse Problems*, **25**, Article No. 075002, 2009.

[A2] Hyundae Lee and Won-Kwang Park, **Location search algorithm of thin conductivity inclusions via boundary measurements**, *ESAIM: Proceedings*, **26**, 217–229, 2009.

[A3] Won-Kwang Park and Dominique Lesselier, **Reconstruction of thin electromagnetic inclusions by a level set method**, *Inverse Problems*, **25**, Article No. 085010, 2009.

[A4] Won-Kwang Park and Dominique Lesselier, **Electromagnetic MUSIC-Type imaging of perfectly conducting, arc-like cracks at single frequency**, *Journal of Computational Physics*, **228** (21), 8093–8111, 2009.

[A5] Habib Ammari, Hyeonbae Kang, Hyundae Lee, and Won-Kwang Park, **Asymptotic imaging of perfectly conducting cracks**, *SIAM Journal on Scientific Computing*, **32** (2), 894–922, 2010.

[A6] Won-Kwang Park, **On the imaging of thin dielectric inclusions buried within a half-space**, Special issue on electromagnetic inverse problems: emerging methods and novel applications, *Inverse Problems*, **26**, Article No. 074008, 2010.

[A7] Won-Kwang Park, **Non-iterative imaging of thin electromagnetic inclusions from multi-frequency response matrix**, *Progress in Electromagnetics Research*, **106**, 225–241, 2010.

[A8] Won-Kwang Park, **On the imaging of thin dielectric inclusions via topological derivative concept**, *Progress in Electromagnetics Research*, **110**, 237–252, 2010.

[A9] Habib Ammari, Josselin Garnier, Hyeonbae Kang, Won-Kwang Park, and Knut Sølna, **Imaging schemes for perfectly conducting cracks**, *SIAM Journal on Applied Mathematics*, **71** (1), 68–91, 2011.

[A10] Won-Kwang Park, **Topological derivative for fast imaging of two dimensional thin dielectric inclusions in the wave propagation environment**, *Journal of Electromagnetic Engineering and Science*, **11** (1), 56–61, 2011.

[A11] Yong-Ki Ma, Pok-Son Kim, and Won-Kwang Park, **Analysis of topological derivative function for a fast electromagnetic imaging of perfectly conducing cracks**, *Progress in Electromagnetics Research*, **122**, 311–325, 2012.

[A12] Won-Kwang Park and Dominique Lesselier, **Fast electromagnetic imaging of thin inclusions in half-space affected by random scatterers**, Special issue on imaging in complex media, *Waves in Random and Complex Media*, **22** (1). 3–23, 2012.

[A13] Won-Kwang Park, **Topological derivative strategy for one-step iteration imaging of arbitrary shaped thin, curve-like electromagnetic inclusions**, *Journal of Computational Physics*, **231** (4), 1426–1439, 2012.

[A14] Yong-Ki Ma and Won-Kwang Park, **A topological derivative based non-iterative electromagnetic imaging of perfectly conducting cracks**, *Journal of Electromagnetic Engineering and Science*, **12** (1), 128–134, 2012.

[A15] Young-Deuk Joh, Young Mi Kwon, Joo Young Huh, and Won-Kwang Park, **Structure analysis of single- and multi-frequency subspace migrations in inverse scattering problems**, *Progress in Electromagnetics Research*, **136**, 607–622, 2013.

[A16] Won-Kwang Park and Taehoon Park, **Multi-frequency based direct location search of small electromagnetic inhomogeneities embedded in two-layered medium**, *Computer Physics Communications*, **184** (7), 1649–1659, 2013.

[A17] Young-Deuk Joh and Won-Kwang Park, **Structural behavior of the MUSIC-type algorithm for imaging perfectly conducting cracks**, *Progress in Electromagnetics Research*, **218**, 211–226, 2013.

[A18] Won-Kwang Park, **Multi-frequency topological derivative for an approximate shape acquisition of curve-like thin electromagnetic inhomogeneities**, *Journal of Mathematical Analysis and Applications*, **404** (2), 501–518, 2013.

- Dedicated to professor Dominique Lesselier for his 60th birthday.

[A19] Young Mi Kwon and Won-Kwang Park, **Analysis of subspace migration in the limited-view inverse scattering problems**, *Applied Mathematics Letters*, **26** (12), 1107–1113, 2013.

[A20] Won-Kwang Park, **Shape reconstruction of thin electromagnetic inclusions via boundary measurements: level-set method combined with topological derivative**, *Mathematical Problems in Engineering*, **2013**, Article No. 125909, 2013.

[A21] Won-Kwang Park, **Analysis of a multi-frequency electromagnetic imaging functional for thin, crack-like electromagnetic inclusions**, *Applied Numerical Mathematics*, **77** 31–42, 2014.

[A22] Won-Kwang Park, **Improved subspace migration for imaging of small and arc-like perfectly conducting cracks**, *Journal of Electromagnetic Waves and Applications*, **28** (4), 410–419, 2014.

[A23] Young-Deuk Joh, Young Mi Kwon, and Won-Kwang Park, **MUSIC-type imaging of perfectly conducting cracks in limited-view inverse scattering problems**, *Applied Mathematics and Computation*, **240**, 273–280, 2014.

[A24] Won-Kwang Park, **Properties of MUSIC-type algorithm for imaging of thin dielectric inhomogeneity in limited-view inverse scattering problem**, *Progress In Electromagnetics Research M*, **37**, 109–118, 2014.

[A25] Chi Young Ahn, Kiwan Jeon, Yong-Ki Ma, and Won-Kwang Park, **A study on the topological derivative-based imaging of thin electromagnetic inhomogeneities in limited-aperture problems**, *Inverse Problems*, **30** (10), 105004, 2014.

[A26] Young-Deuk Joh and Won-Kwang Park, **Analysis of multi-frequency subspace migration weighted by natural logarithmic function for fast imaging of two-dimensional thin, arc-like electromagnetic inhomogeneities**, *Computers & Mathematics with Applications*, **68** (12A), 1892–1904, 2014.

[A27] Won-Kwang Park, **Multi-frequency subspace migration for imaging of perfectly conducting, arc-like cracks in full- and limited-view inverse scattering problems**, *Journal of Computational Physics*, **283**, 52–80, 2015.

[A28] Jung Ho Park and Won-Kwang Park, **Localization of small perfectly conducting cracks from far-field pattern with unknown frequency**, *Applied Mathematics Letters*, **43**, 25–32, 2015.

[A29] Won-Kwang Park, **Asymptotic properties of MUSIC-type imaging in two-dimensional inverse scattering from thin electromagnetic inclusions**, *SIAM Journal on Applied Mathematics*, **75** (1), 209–228, 2015.

[A30] Chi Young Ahn, Kiwan Jeon, and Won-Kwang Park, **Analysis of MUSIC-type imaging functional for single, thin electromagnetic inhomogeneity in limited-view inverse scattering problem**, *Journal of Computational Physics*, **291**, 198–217, 2015.

[A31] Yong-Ki Ma and Won-Kwang Park, **Analysis of MUSIC-type imaging functionals for small two-dimensional electromagnetic inhomogeneities**, *Journal of Electromagnetic Waves and Applications*, **29**, 1430–1439, 2015.

[A32] Won-Kwang Park, **Negative result of multi-frequency topological derivative based imaging in limited-aperture inverse scattering problem**, *Results in Physics*, **6**, 14–15, 2016.

[A33] Won-Kwang Park, **Interpretation of MUSIC for location detecting of small inhomogeneities surrounded by random scatterers**, *Mathematical Problems in Engineering*, **2016**, Article No. 7872548, 2016.

[A34] Won-Kwang Park, **Detection of small electromagnetic inhomogeneities with inaccurate frequency**, *Journal of the Korean Physical Society*, **68** (5), 607–615, 2016.

[A35] Won-Kwang Park, **Performance analysis of multi-frequency topological derivative for reconstructing perfectly conducting cracks**, *Journal of Computational Physics*, **335**, 865–884, 2017.

- Dedicated to professor Chang Bum Kim on the occasion of his retirement.

[A36] Won-Kwang Park, **Appearance of inaccurate results in the MUSIC algorithm with inappropriate wavenumber**, *Journal of Inverse and Ill-Posed Problems*, **25**, 807–817, 2017.

[A37] Won-Kwang Park, **Certain properties of MUSIC-type imaging functional in inverse scattering from an open, sound-hard arc**, *Computers & Mathematics with Applications*, **74**, 1232–1245, 2017.

[A38] Won-Kwang Park, Hwa Pyung Kim, Kwang-Jae Lee, and Seong-Ho Son, **MUSIC algorithm for location searching of dielectric anomalies from S-parameters using microwave imaging**, *Journal of Computational Physics*, **348**, 259–270, 2017.

[A39] Won-Kwang Park, **A novel study on subspace migration for imaging of a sound-hard arc**, *Computers & Mathematics with Applications*, **74**, 3000–3007, 2017.

[A40] Won-Kwang Park, **Topological derivative-based technique for imaging thin inhomogeneities with few incident directions**, *Inverse Problems in Science & Engineering*, **26**, 1490–1508, 2018.

- Dedicated to professor Jae-Ryong Kim on the occasion of his retirement.

[A41] Won-Kwang Park, **Detection of small inhomogeneities via direct sampling method in transverse electric polarization**, *Applied Mathematics Letters*, **79**, 169–175, 2018.

[A42] Won-Kwang Park, **Topological derivative for imaging of thin electromagnetic inhomogeneity: least condition of incident directions**, *Advances in Mathematical Physics*, **2018**, Article No. 2096058, 2018.

[A43] Won-Kwang Park, **Direct sampling method for anomaly imaging from scattering parameter**, *Applied Mathematics Letters*, **81**, 63–71, 2018.

[A44] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Direct sampling method for imaging small dielectric inhomogeneities: analysis and improvement**, *Inverse Problems*, **34**, Article No. 095005, 2018.

[A45] Won-Kwang Park, **Reconstruction of thin electromagnetic inhomogeneity without diagonal elements of a multi-static response matrix**, *Inverse Problems*, **34**, Article No. 095008, 2018.

[A46] Won-Kwang Park, **Direct sampling method for retrieving small perfectly conducting cracks**, *Journal of Computational Physics*, **373**, 648–661, 2018.

[A47] Won-Kwang Park, **Fast identification of small perfectly conducting cracks without diagonal elements of Multi-Static Response matrix**, *Journal of Electromagnetic Waves and Applications*, **32** (18), 2490–2502, 2018.

[A48] Won-Kwang Park, **Real-time microwave imaging of unknown anomalies via scattering matrix**, *Mechanical Systems and Signal Processing*, **118**, 658–674, 2019.

[A49] Won-Kwang Park, **Improvement of direct sampling method in transverse electric polarization**, *Applied Mathematics Letters*, **88**, 209–215, 2019.

[A50] Won-Kwang Park, **Negative result of multi-frequency direct sampling method in microwave imaging**, *Results in Physics*, **12**, 859–860, 2019.

[A51] Won-Kwang Park, **Fast location search of small anomaly by using microwave**, *International Journal of Applied Electromagnetics and Mechanics*, **59** (4), 1505–1510, 2019.

[A52] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Analysis and improvement of direct sampling method in the mono-static configuration**, *IEEE Geoscience and Remote Sensing Letters*, **16** (11), 1721–1725, 2019.

[A53] Seong-Ho Son, Kwang-Jae Lee, and Won-Kwang Park, **Application and analysis of direct sampling method in real-world microwave imaging**, *Applied Mathematics Letters*, **96**, 47–53, 2019.

[A54] Won-Kwang Park, **Fast imaging of short perfectly conducting cracks in limited-aperture inverse scattering problem**, Special issue on microwave imaging and its application, *Electronics*, **8** (9), Article No. 1050, 2019.

[A55] Chi Young Ahn, Taeyoung Ha, and Won-Kwang Park, **Kirchhoff migration for identifying unknown targets surrounded by random scatterers**, *Applied Sciences*, **9** (20), Article No. 4446, 2019.

[A56] Won-Kwang Park, **Experimental validation of the factorization method to microwave imaging**, *Results in Physics*, **17**, Article No. 103071, 2020.

[A57] Kwang-Jae Lee, Seong-Ho Son, and Won-Kwang Park, **A real-time microwave imaging of unknown anomaly with and without diagonal elements of scattering matrix**, *Results in Physics*, **17**, Article No. 103104, 2020.

[A58] Won-Kwang Park, **Fast imaging of thin, curve-like electromagnetic inhomogeneities without a priori information**, *Mathematics*, **8**(5), Article No. 799, 2020.

[A59] Sangwoo Kang, Marc Lambert, Chi Young Ahn, Taeyoung Ha, and Won-Kwang Park, **Single- and multi-frequency direct sampling methods in limited-aperture inverse scattering problem**, *IEEE Access*, **8**, 121637–121649, 2020.

[A60] Seongje Chae, Chi Young Ahn, and Won-Kwang Park, **Localization of small anomalies via orthogonality sampling method from scattering parameters**, Special issue on photonic and microwave sensing developments and applications, *Electronics*, 9(7), Article No. 1119, 2020.

[A61] Chi Young Ahn, Seongje Chae, and Won-Kwang Park, **Fast identification of short, sound-soft open arcs via orthogonality sampling method in limited-aperture inverse scattering problem**, *Applied Mathematics Letters*, **109**, Article No. 106556, 2020.

[A62] Chi Young Ahn, Taeyoung Ha, and Won-Kwang Park, **Direct sampling method for identifying magnetic inhomogeneities in limited-aperture inverse scattering problem**, *Computers & Mathematics with Applications*, **80** (12), 2811–2829, 2020.

[A63] Won-Kwang Park, **Application of the MUSIC algorithm in real-world microwave imaging of unknown anomalies from scattering matrix**, *Mechanical Systems and Signal Processing*, **153**, Article No. 107501, 2021.

- Dedicated to professor Jin Keun Seo on the occasion of his 60th birthday.

[A64] Won-Kwang Park, **Performance improvement of single- and multi-frequency direct sampling methods in microwave imaging**, *Results in Physics*, **20**, Article No. 103727, 2021.

[A65] Won-Kwang Park, **Theoretical identification of coupling effect and performance analysis of single-source direct sampling method**, *Mathematics*, **9** (9), Article No. 1065, 2021.

[A66] Won-Kwang Park, **Accurate identification of multiple anomalies in microwave imaging via direct sampling method with multiple sources**, *Results in Physics*, **28**, Article No. 104637, 2021.

[A67] Won-Kwang Park, **Fast localization of small inhomogeneities from far-field pattern data in limited-aperture inverse scattering problem**, *Mathematics*, **9** (17), Article No. 2087, 2021.

[A68] Sangwoo Kang, Seongje Chae, and Won-Kwang Park, **A study on the orthogonality sampling method corresponding to the observation directions configuration**, *Results in Physics*, **33**, Article No. 105108, 2022.

[A69] Won-Kwang Park, **Real-time detection of small anomaly from limited-aperture measurements in real-world microwave imaging**, *Mechanical Systems and Signal Processing*, **171**, Article No. 108937, 2022.

[A70] Won-Kwang Park, **A novel study on the MUSIC-type imaging of small electromagnetic inhomogeneities in the limited-aperture inverse scattering problem**, *Journal of Computational Physics*, **460**, Article No. 111191, 2022.

[A71] Sangwoo Kang and Won-Kwang Park, **Application of MUSIC algorithm for a fast identification of small perfectly conducting cracks in limited-aperture inverse scattering problem**, *Computers & Mathematics with Applications*, **117**, 97–112, 2022.

[A72] Won-Kwang Park, **Theoretical study on non-improvement of the multi-frequency direct sampling method in inverse scattering problem**, *Mathematics*, **10** (10), Article No. 1674, 2022.

[A73] Won-Kwang Park, **Investigation of a non-iterative technique based on topological derivatives for fast localization of small conductivity inclusions**, *Computers & Mathematics with Applications*, **120**, 45–59, 2022.

[A74] Sangwoo Kang, Mikyoung Lim, and Won-Kwang Park, **Fast identification of short, linear perfectly conducting cracks in the bistatic measurement configuration**, *Journal of Computational Physics*, 468, Article No. 111479, 2022.

[A75] Seong-Ho Son and Won-Kwang Park, **Localization of small objectives from scattering parameter via bistatic measurement configuration**, Special issue on Biomedical Applications of Micro/Millimeter Waves, *Electronics*, **11** (19), Article No. 3054, 2022.

[A76] Sang-Su Jeong, Won-Kwang Park, and Young-Deuk Joh, **Construction of full-view data from limited-view data using artificial neural network in inverse scattering problem**, Special issue on Future Information & Communication Engineering 2022, *Applied Sciences*, **12** (19), Article No. 9801, 2022.

[A77] Wonhyung Son, Won-Kwang Park, and Seong-Ho Son, **A neural network-based microwave imaging method for object localization**, *Journal of Electromagnetic Engineering and Science*, **22** (5), 576–579, 2022.

[A78] Won-Kwang Park, **Shape identification of open sound-hard arcs without priori information in limited-view inverse scattering problem**, *Computers & Mathematics with Applications*, **128**, 55–68, 2022.

[A79] Won-Kwang Park, **On the application of orthogonality sampling method for object detection in microwave imaging**, *IEEE Transactions on Antennas and Propagation*, **71** (1), 934–946, 2023.

[A80] Won-Kwang Park, **On the application of MUSIC algorithm for identifying short sound-hard arcs in limited-view inverse acoustic problem**, *Wave Motion*, **117**, Article No. 103114, 2023.

- Dedicated to professor Taehoon Park on the occasion of his retirement.

[A81] Sangwoo Kang, Won-Kwang Park, and Seong-Ho Son, **A qualitative analysis of the bifocusing method for a real-time anomaly detection in microwave imaging**, *Computers & Mathematics with Applications*, **137** (1), 93–101, 2023.

[A82] Won-Kwang Park, **A novel study on the orthogonality sampling method in microwave imaging without background information**, *Applied Mathematics Letters*, **145**, Article No. 108766, 2023.

[A83] Seong-Ho Son and Won-Kwang Park, **Application of the bifocusing method in microwave imaging without background information**, *Journal of the Korean Society for Industrial and Applied Mathematics*, **27** (2), 109–122, 2023.

[A84] Chi Young Ahn, Seongje Chae, Sangwoo Kang, Kwang-Jae Lee, Won-Kwang Park, and Seong-Ho Son, **Orthogonality sampling method for identifying small anomalies in real-world microwave imaging**, *East Asian Journal on Applied Mathematics*, accepted for publication.

[A85] Sangwoo Kang and Won-Kwang Park, **A novel study on the bifocusing method in two-dimensional inverse scattering problem**, Special issue on new insights of the application of inverse problems and machine learning in science and technology, *AIMS Mathematics*, **8** (11), 27080–27112, 2023.

[A86] Won-Kwang Park, **On the identification of small anomaly in microwave imaging without homogeneous background information**, *AIMS Mathematics*, **8** (11), 27210–27226. 2023.

Submitted Articles

[S1] Won-Kwang Park, **Application of MUSIC-type imaging for anomaly detection without background information**.

[S2] Won-Kwang Park, **Real-time identification of small anomalies from scattering matrix without background information**.

[S3] Seongje Chae and Won-Kwang Park, **Application of the orthogonality sampling method in real-world microwave imaging**, conference proceedings.

[S4] Seongje Chae, Taeyoung Ha, Won-Kwang Park, and Minha Yoo, **Application of the topological derivative for a fast imaging of unknown objects from boundary measurements**, conference proceedings.

[S5] Janghoon Jeong, Won-Kwang Park, and Seong-Ho Son, **Object localization in highly cluttered environments using neural network learning on microwave scattering data**.

Papers in Conference Proceedings & Abstracts

[C1] Won-Kwang Park, Habib Ammari, and Dominique Lesselier, **On the imaging of two-dimensional thin inclusions by a MUSIC-type algorithm from boundary measurements**, Electromagnetic Nondestructive Evaluation (ENDE) XII, Studies in Applied Electromagnetics and Mechanics, **32**, 297–304, 2009.

[C2] Won-Kwang Park, Habib Ammari, and Dominique Lesselier, **Non-iterative MUSIC-type algorithm for reconstructing two-dimensional thin dielectric inclusions**, Proceedings of the EU-Korea Conference on Science and Technology (EKC), Springer Proceedings in Physics, **124**, 297–305, 2008.

[C3] Won-Kwang Park, Habib Ammari, and Dominique Lesselier, **Non-iterative imaging of electromagnetic thin inclusions**, Digiteo annual forum, 2008.

[C4] Won-Kwang Park and Dominique Lesselier, **Fissures minces et la faisabilité de leur imagerie électromagnétique non-itérative**, Journée Thématique GDR ONDES GT1–GT3 et Intergroupe ONDES–ISIS, 2008.

[C5] Won-Kwang Park and Hyundae Lee, **Location search algorithm of thin conductivity inclusions**, Proceedings of conférence annuelle de l'Association des Scientifiques Coréens en France (ASCoF), 49–53, 2009.

[C6] Habib Ammari, Hyeonbae Kang, Hyundae Lee, and Won-Kwang Park, **Fast imaging algorithm for impenetrable small cracks**, International workshop on non-conventional imaging and focusing techniques: from acoustics to optics, May 2009, Cargèse, France.

[C7] Won-Kwang Park and Dominique Lesselier, **On the level set evolution of thin electromagnetic screens in the wave propagation regime**, Workshop on electromagnetic inverse problems, 2009.

[C8] Won-Kwang Park and Dominique Lesselier, **Level set method for reconstruction of thin electromagnetic inclusions**, Proceedings of the EU-Korea Conference on Science and Technology (EKC), **135**, 99–108, 2010.

[C9] Won-Kwang Park and Dominique Lesselier, **Imaging of scattering screens via fast methods**, Proceedings of the 2009 International conference on electromagnetics in advanced applications (ICEAA), 74–77, 2009.

[C10] Won-Kwang Park, **Non-iterative imaging of thin dielectric inclusions buried within a half-space: limited aspect problem**, Second SFB Status Seminar, 2009.

[C11] Won-Kwang Park, **Topological derivative concept for imaging of thin inclusions**, Proceedings of The Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **20** (1), 66, November 2010.

[C12] Won-Kwang Park and Taehoon Park, **Low-frequency limited-view inverse scattering from thin electromagnetic inclusions**, Proceedings of the 4th International Congress on Image and Signal Processing (CISP), 2785–2788, 2011.

[C13] Won-Kwang Park and Dominique Lesselier, **Non-iterative electromagnetic imaging of perfectly conducting screens from limited range far-field data**, Proceedings of International Symposium on Antennas and Propagation (ISAP), 2011.

[C14] Yong-Ki Ma and Won-Kwang Park, **Non-Iterative Imaging of Perfectly Conducting Crack**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **21** (1), 108, 2011.

[C15] Won-Kwang Park, **An accurate location search of small electromagnetic inhomogeneities buried in a half-space**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), **7** (1), 235–238, 2012.

[C16] Joo Young Huh, Young Mi Kwon, Young-Deuk Joh, and Won-Kwang Park, **Multi-frequency imaging of small electromagnetic inclusions via limited-view near-field data**, Proceedings of the 5th International Congress on Image and Signal Processing (CISP), 1889–1892, 2013.

[C17] Young-Deuk Joh, Joo Young Huh, Young Mi Kwon, and Won-Kwang Park, **Structure of single- and multi-frequency imaging functions**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **22** (1), 3, 2012.

[C18] Won-Kwang Park and Dominique Lesselier, **Multi-frequency imaging of perfectly conducting cracks via boundary measurements**, Proceedings of the International Conference on Mathematical Modeling in Physical Sciences (IC-MSQUARE), Journal of Physics: Conference Series, **410**, 012018, 2013.

[C19] Young-Deuk Joh, Young Mi Kwon, Joo Young Huh, and Won-Kwang Park, **Weighted multi-frequency imaging of thin, crack-like electromagnetic inhomogeneities**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Taipei, 631–635, 2013.

[C20] Won-Kwang Park, **Shape reconstruction of thin electromagnetic inhomogeneities via multi-frequency topological derivative**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), **8** (1), 147–150, 2013.

[C21] Won-Kwang Park and Young-Deuk Joh, **A relationship between MUSIC-type imaging functional and Bessel functions**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), **8** (1), 213–216, 2013.

[C22] Young Mi Kwon and Won-Kwang Park, **Subspace migration imaging of small perfectly conducting cracks in the limited-view inverse scattering**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), **8** (1), 225–228, 2013.

[C23] Won-Kwang Park, **MUSIC-type imaging in the limited-view inverse scattering**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **1** (1), 135, 2013.

[C24] Won-Kwang Park, **Fast imaging of perfectly conducting, arc-like cracks via multi-frequency topological derivative**, Proceedings of Annual Meeting of the the Korean Society for Industrial and Applied Mathematics (KSIAM), **1** (1), 99, 2013.

[C25] Young-Deuk Joh, Young Mi Kwon, and Won-Kwang Park, **Structure of MUSIC algorithm for imaging of small perfectly conducting cracks in limited-view inverse scattering problem**, Proceedings of Annual Meeting of the the Korean Society for Industrial and Applied Mathematics (KSIAM), **1** (1), 167, 2013.

[C26] Won-Kwang Park, **Multi-frequency topological derivative strategy for imaging of thin, arc-like dielectric inclusions**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **23** (1), 77, 2013.

[C27] Young-Deuk Joh and Won-Kwang Park, **An optimized weighted multi-frequency subspace migration for imaging perfectly conducting, arc-like cracks**, Proceedings of the 6th International Congress on Image and Signal Processing (CISP), 250–255, 2013.

[C28] Won-Kwang Park, **Analysis of weighted multi-frequency subspace migration for a fast imaging of thin electromagnetic inhomogeneities**, Proceedings of Spring conference of the Korean Society for Industrial and Applied Mathematics (KSIAM), **1** (2), 37, 2014.

[C29] Won-Kwang Park, **Asymptotic structure of two-dimensional MUSIC-type imaging functional**, Proceedings of Annual Meeting of the the Korean Society for Industrial and Applied Mathematics (KSIAM), **2** (1), 163, 2014.

[C30] Won-Kwang Park, **MUSIC-type imaging algorithm with inaccurate frequency**, Proceedings of Spring conference of the Korean Society for Industrial and Applied Mathematics (KSIAM), **2** (2), 127, 2015.

[C31] Jung Ho Park, Young-Deuk Joh, and Won-Kwang Park, **Detection of small cracks via subspace migration with unknown frequency**, Proceedings of Spring conference of the Korean Society for Industrial and Applied Mathematics (KSIAM), **2** (2), 147, 2015.

[C32] Chi Young Ahn, Kiwan Jeon, Yong-Ki Ma, and Won-Kwang Park, **A necessary condition for application of topological derivative in limited-aperture inverse scattering problem**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Prague, 442–446, 2015.

[C33] Won-Kwang Park, **Subspace migration for imaging of thin electromagnetic inhomogeneities without shape information**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Prague, 447–451, 2015.

[C34] Won-Kwang Park, **MUSIC-type imaging of small perfectly conducting cracks with unknown frequency**, Proceedings of the International Conference on Mathematical Modeling in Physical Sciences (IC-MSQUARE), Journal of Physics: Conference Series, **633**, 012005, 2015.

[C35] Taehoon Park and Won-Kwang Park, **A necessary condition for applying MUSIC algorithm in limited-view inverse scattering problem**, Proceedings of the International Conference on Mathematical Modeling in Physical Sciences (IC-MSQUARE), Journal of Physics: Conference Series, **633**, 012006, 2015.

[C36] Young-Deuk Joh and Won-Kwang Park, **Subspace migration weighted by natural logarithmic function**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, USB proceedings, 2015.

[C37] Jung Ho Park and Won-Kwang Park, **Detection of small cracks with unknown frequency**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, USB proceedings, 2015.

[C38] Won-Kwang Park, **Subspace migration without a priori information of thin inhomogeneity**, Proceedings of Annual Meeting of the the Korean Society for Industrial and Applied Mathematics (KSIAM), **3** (1), 39, 2015.

[C39] Won-Kwang Park, **Application of MUSIC algorithm to limited-view inverse scattering problem**, Proceedings of the 8th International Congress on Image and Signal Processing (CISP), 1032–1037, 2015.

[C40] Won-Kwang Park, **Linear sampling method for imaging an extended crack using limited-range far-field data**, Proceedings of the 8th International Congress on Image and Signal Processing (CISP), 1048–1052, 2015.

[C41] Won-Kwang Park, **Subspace migration for shape reconstruction of a crack with an unknown wavenumber**, Proceedings of the 8th International Congress on Image and Signal Processing (CISP), 1069–1073, 2015.

[C42] Hyeoncheol Jo, Kyungrok Lee, Young-Deuk Joh, and Won-Kwang Park, **On the imaging of an open sound-hard arc in inverse acoustic scattering problem**, Proceedings of Spring conference of the Korean Society for Industrial and Applied Mathematics (KSIAM), **3** (2), 108, 2016.

[C43] Won-Kwang Park, Al-Chan Hwang, Jun-Hoo Yeo, and Young-Deuk Joh, **Effects of distribution of incident and observation direction on the subspace migration imaging algorithm**, Proceedings of Spring conference of the Korean Society for Industrial and Applied Mathematics (KSIAM), **3** (2), 142, 2016.

[C44] Hyeoncheol Jo, Kyungrok Lee, Young-Deuk Joh, and Won-Kwang Park, **On the imaging of arc-like perfectly conducting crack**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, USB proceedings, 2016 (Received Best Paper Award).

[C45] Won-Kwang Park, **MUSIC algorithm for imaging of inhomogeneities surrounded by random scatterers: numerical study**, Proceedings of the 2nd Applied Electromagnetic International Conference (APPEIC), Lecture Notes in Electrical Engineering, **379**, 51–60, 2016.

[C46] Won-Kwang Park, **MUSIC algorithm for imaging perfectly conducting crack in limited-view inverse scattering problem**, Abstract of the 8th International Conference on Inverse Problems and Related Topics (ICIP), 2016.

[C47] Won-Kwang Park, **Smallest number of incident directions for topological derivative imaging: a numerical study**, Proceedings of the International Conference on Mathematical Modeling in Physical Sciences (IC-MSQUARE), Journal of Physics: Conference Series, **738**, 012049, 2016.

[C48] Won-Kwang Park, **Shape identification of arc-like perfectly conducting cracks in limited-view inverse scattering problem**, Abstract of the 12th World Congress on Computational Mechanics (WCCM) & 6th Asia-Pacific Congress on Computational Mechanics (APCOM), 2016.

[C49] Won-Kwang Park, **Shape identification of perfectly conducting, arc-like crack in Transverse Electric mode**, Proceedings of URSI Asia-Pacific Radio Science Conference, 1830–1833, 2016.

[C50] Won-Kwang Park, Hwa Pyung Kim, Kwang-Jae Lee, Seong-Ho Son, and Jin Keun Seo, **Application of MUSIC for anomaly detection in microwave imaging**, Abstract of the International Conference for the 70th Anniversary of Korean Mathematical Society (KMS), 148–149, **53** (2), 2016.

[C51] Won-Kwang Park, Kwang-Jae Lee, Hwa Pyung Kim, Jin Keun Seo, and Seong-Ho Son, **MUSIC algorithm for imaging anomaly in microwave imaging**, Proceedings of Annual Meeting of the the Korean Society for Industrial and Applied Mathematics (KSIAM), **4** (1), 117–118, 2016.

[C52] Chi Young Ahn, Taeyoung Ha, Kiwan Jeon, and Won-Kwang Park, **Application of MUSIC for shape identification of dielectric extended targets in inhomogeneous medium**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Shanghai, 3002–3006, 2016.

[C53] Won-Kwang Park, **Detection of small dielectric inhomogeneities enclosed by random scatterers via Kirchhoff and subspace migration**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Shanghai, 3007–3011, 2016.

[C54] Won-Kwang Park, **Multi-frequency MUSIC for searching small dielectric inclusions surrounded by random scatterers**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Shanghai, 3012–3016, 2016.

[C55] Sangwoo Kang and Won-Kwang Park, **Comparing the imaging performance of MUSIC and linear sampling method**, Proceedings of the 9th International Congress on Image and Signal Processing (CISP), 1298–1301, 2016.

[C56] Won-Kwang Park, **MUSIC algorithm for small anomaly detection in microwave imaging**, abstract for the 2nd Winter School in Imaging Science, 20, 2017.

[C57] Won-Kwang Park, **Multi-frequency topological derivative strategy for imaging two-dimensional perfectly conducting, arc-like crack**, abstract for the 9th Applied Inverse Problems conference, 63, 2017.

[C58] Won-Kwang Park, **MUSIC algorithm for imaging of a sound-hard arc in limited-view inverse scattering problem**, Proceedings of the 14th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM), AIP Conference Proceedings, **1863**, 560002, 2017.

[C59] Won-Kwang Park, **A study on direct sampling method for retrieving multiple targets**, abstract for Europe-Korea Conference on Science and Technology (EKC), 2017.

[C60] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Multi-frequency direct sampling method in inverse scattering problem**, Proceedings of the 7th International Conference on New Computational Methods for Inverse Problems (NCMIP), Journal of Physics: Conference Series, **904**, 012018, 2017.

[C61] Won-Kwang Park, Kwang-Jae Lee, Hwa Pyung Kim, and Seung-Ho Son, **Application of MUSIC in microwave imaging for detection of dielectric anomaly**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Saint Petersburg, 2908–2912, 2017.

[C62] Won-Kwang Park, **On the reconstruction of perfectly conducing crack in Transverse Electric case**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Saint Petersburg, 2913–2917, 2017.

[C63] Won-Kwang Park, **A least condition of topological derivative for imaging of thin, flat dielectric inhomogeneity**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Saint Petersburg, 2918–2921, 2017.

[C64] Chi Young Ahn, Taeyoung Ha, Kiwan Jeon, and Won-Kwang Park, **Shape identification of extended dielectric targets in inhomogeneous medium via Kirchhoff migration**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Saint Petersburg, 2922–2926, 2017.

[C65] Won-Kwang Park, **Application of linear sampling method for identifying location of small dielectric inhomogeneities in a half-space**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Saint Petersburg, 2927–2930, 2017.

[C66] Won-Kwang Park, **A novel study on direct sampling method for imaging multiple targets**, Proceedings of the 2nd International Conference on Applied Mathematics, Simulation and Modeling (AMSM), DEStech Transactions on Engineering and Technology Research, 32–36, 2017.

[C67] Seong-Ho Son, Kwang-Jae Lee, and Won-Kwang Park, **Imaging of small anomaly via direct sampling method**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **5**, 143, 2017.

[C68] Won-Jun Jung, Eugene Ahn, Young-Deuk Joh, and Won-Kwang Park, **Analysis of direct samplig method corresponding to the length of crack**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **5**, 439, 2017.

[C69] Won-Kwang Park, **Fast location search of small anomaly by using microwave**, Abstract for the 18th International Symposium on Applied Electromagnetics and Mechanics (ISEM), 2017.

- Extended paper has been published in [A51].

[C70] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Direct sampling method in inverse scattering problem**, Assemblée générale "Interférences d'Ondes", Sophia Antipolis, 2017.

[C71] Won-Kwang Park, **Fast localization of small inhomogeneity without diagonal elements of MSR matrix**, Proceedings of International Symposium on Antennas and Propagation (ISAP), 1–2, 2017.

[C72] Young-Deuk Joh and Won-Kwang Park, **Direct sampling method for imaging short linear perfectly conducting cracks**, Proceedings of Annual Meeting of the Korean Society for Industrial and Applied Mathematics (KSIAM), **12** (1), 98, 2017.

[C73] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Improvement of direct sampling method in inverse scattering problem**, Abstract of the ASCoF Autumn Conference, 14–16, 2017.

[C74] Won-Kwang Park, **Linear sampling method for localizing small anomaly in microwave imaging**, Electromagnetic Nondestructive Evaluation (ENDE) XXI, Studies in Applied Electromagnetics and Mechanics, **43**, 57–64, 2018.

[C75] Won-Kwang Park, **Direct sampling method for imaging small sound-soft arcs**, Proceedings of the 15th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM), AIP Conference Proceedings, **1978**, 470072, 2018.

[C76] Sangwoo Kang, Marc Lambert, and Won-Kwang Park, **Analysis of Kirchhoff migration and direct sampling method with far-field mono-static data**, Proceedings of the 2nd URSI Atlantic Radio Science Meeting, 1–4, 2018.

[C77] Won-Kwang Park, **MUSIC algorithm for imaging small anomaly from scattering parameter: real-data experiments**, Proceedings of the Progress in Electromagnetics Research Symposium (PIERS) in Toyama, 2362–2364, 2018.

[C78] Won-Kwang Park, **Real-time microwave imaging of small anomalies without diagonal elements of the scattering matrix**, abstract for the 9th International Conference on Inverse Problems and Related Topics (ICIP), 50, 2018.

[C79] Won-Kwang Park, **Real-time microwave imaging of moving anomaly from scattering matrix**, Abstract of the Europe-Korea Conference on Science and Technology (EKC) 2018, 56, 2018.

[C80] Won-Kwang Park, **MUSIC algorithm for imaging small anomaly from scattering matrix**, Proceedings of the 71st Joint Conference of Electrical, Electronics and Information Engineers (JCEEIE) in Kyushu, 404, 2018.

[C81] Won-Kwang Park, **Application of MUSIC algorithm in microwave imaging**, Abstract of the Joint Meeting of the Korean Mathematical Society (KMS) and the German Mathematical Society (DMV), **55** (2), 122, 2018.

[C82] Won-Kwang Park, Kwang-Jae Lee, and Seong-Ho Son, **Real-time tracking of moving anomaly from scattering parameters**, Proceedings of the International Symposium on Antennas and Propagation (ISAP), 175–176, 2018.

[C83] Young-Deuk Joh, Sangwoo Kang, and Won-Kwang Park, **Multi-frequency direct sampling method for imaging short linear perfectly conducting cracks**, Proceedings of Annual Meeting of the Korean Society for Industrial and Applied Mathematics (KSIAM), **13** (2), 115, 2018.

[C84] Won-Kwang Park, **MUSIC algorithm without diagonal elements of scattering matrix**, Proceedings of the 8th international conference on advances in computing, electronics and communication (ACEC), 70–72, 2019.

[C85] Won-Kwang Park, **Application of direct sampling method in microwave imaging**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **1** (1), 78, 2019.

[C86] Won-Kwang Park, Kwang-Jae Lee, and Seong-Ho Son, **A study on the effect of diagonal elements of scattering matrix in microwave imaging**, Proceedings of the PhotonIcs & Electromagnetics Research Symposium (PIERS) in Rome, 638, 2019.

[C87] Chi Young Ahn, Taeyoung Ha, and Won-Kwang Park, **Shape identification of extended dielectric inhomogeneities in inhomogeneous medium via factorization method**, Proceedings of the PhotonIcs & Electromagnetics Research Symposium (PIERS) in Rome, 2003, 2019.

[C88] Young-Deuk Joh, Kwang-Jae Lee, Won-Kwang Park, and Seong-Ho Son, **Non-iterative microwave imaging without diagonal elements of scattering matrix**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **7** (1), 647, 2019.

[C89] Kwang-Jae Lee, Seong-Ho Son, and Won-Kwang Park, **Imaging of unknown anomaly via scattering matrix with and without diagonal elements**, Proceedings of the International Symposium on Antennas and Propagation (ISAP), 2019.

[C90] Young-Deuk Joh, Kwang-Jae Lee, Won-Kwang Park, and Seong-Ho Son, **Non-iterative microwave imaging without background information**, Proceedings of Annual Meeting of the Korean Society for Industrial and Applied Mathematics (KSIAM), **14** (2), 105, 2019.

[C91] Won-Kwang Park, Kwang-Jae Lee, and Seong-Ho Son, **Real-time imaging of moving anomaly from scattering matrix**, Proceedings of the PhotonIcs & Electromagnetics Research Symposium (PIERS) in Xiamen, 294, 2019.

[C92] Kwang-Jae Lee, Seong-Ho Son, Young-Deuk Joh, and Won-Kwang Park, **Application of MUSIC algorithm in real-world microwave imaging**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **8** (1), 589, 2020.

[C93] Seongje Chae, Chi Young Ahn, and Won-Kwang Park, **Application of orthogonality sampling method for identifying small anomaly from scattering parameters**, Proceedings of Annual Meeting of the Korean Society for Industrial and Applied Mathematics (KSIAM), **15** (1), 105, 2020.

[C94] Seongje Chae, Kwang-Jae Lee, Seong-Ho Son, and Won-Kwang Park, **Localization of small anomalies via orthogonality sampling method from scattering parameters**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **3** (1), 156, 2021.

[C95] Seongje Chae, Sangwoo Kang, Kwang-Jae Lee, Seong-Ho Son, and Won-Kwang Park, **Orthogonality sampling method for localizing unknown anomalies in microwave imaging**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **9** (1), 301, 2021.

[C96] Seongje Chae and Won-Kwang Park, **Application of the orthogonality sampling method in real-world microwave imaging**, Proceedings of the 34th General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science (URSI), 2021.

[C97] Sangwoo Kang, Seongje Chae, and Won-Kwang Park, **Effect of the observation direction configuration in orthogonality sampling method**, Proceedings of Annual Meeting of the Korean Society for Industrial and Applied Mathematics (KSIAM), 2021.

[C98] Seongje Chae, Young-Deuk Joh, and Won-Kwang Park, **Design of an orthogonality sampling method in microwave imaging for a fast identification of small anomaly**, Proceedings of the 14th International Conference on Future Information & Communication Engineering (ICFICE), **13** (1), 97–100, 2022.

[C99] Ham Eo Jin Kyu Re and Won-Kwang Park, **MUSIC algorithm for a real-time detection of small anomaly from limited-aperture measurement data**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **4** (1), Article No. 0437, 2022.

[C100] Seongje Chae, Young-Deuk Joh, Sangwoo Kang, Kwang-Jae Lee, Won-Kwang Park, and Seong-Ho Son, **Effect of the observation directions configuration in the orthogonality sampling method**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **4** (1), Article No. 0491, 2022.

[C101] Seongje Chae and Won-Kwang Park, **Orthogonality sampling method for identifying small anomalies in microwave imaging**, Proceedings of the 16th European Conference on Antennas and Propagation (EuCAP), 3292–3293, 2022.

[C102] Won-Kwang Park, **A real-time identification of small conductivity inhomogeneity via topological derivative**, Abstracts of the 10th International Conference "Inverse Problems: Modeling and Simulation" (IPMS), 227, 2020.

[C103] Kwang-Jae Lee, Seong-Ho Son, and Won-Kwang Park, **Real-time tracking of moving objects in real-world microwave imaging**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), 2022.

[C104] Won-Young Song, Kwang-Jae Lee, Won-Kwang Park, and Seong-Ho Son, **Microwave imaging by discretization and regularization of electric field integral equation**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), 2022.

[C105] Seongje Chae and Won-Kwang Park, **Application of the orthogonality sampling method in microwave imaging without background information**, Abstract of the Europe-Korea Conference on Science and Technology (EKC), 2022.

[C106] Seongje Chae, Sangwoo Kang, and Won-Kwang Park, **Application and analysis of the orthogonality sampling method for anomaly detection with inaccurate wavenumber**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **10** (1), 255, 2022.

[C107] Sangwoo Kang, Seongje Chae, and Won-Kwang Park, **Fast anomaly detection via the orthogonality sampling method in microwave imaging**, Proceedings of the 2022 IEEE International Symposium on Radio-Frequency Integration Technology (RFIT), 112–114, 2022.

[C108] Won-Kwang Park, **Detection of small anomaly using MUSIC algorithm without switching device**, Proceedings of the 15th International Conference on Future Information & Communication Engineering (ICFICE), **14** (1), 115–118, 2023.

[C109] Seongje Chae and Won-Kwang Park, **A novel study on orthogonality sampling method**, Proceedings of the Korean Institute of Electromagnetic Engineering Science (KIEES) Conference, **5** (1), 269, 2023.

[C110] Won-Kwang Park, **Fast imaging of single, small conductivity inhomogeneity via topological derivative concept**, Proceedings of the Korean Society for Industrial and Applied Mathematics (KSIAM), 45, 2023.

[C111] Won-Kwang Park, **On the application of MUSIC algorithm for identifying small anomaly without background information**, Proceedings of the 24th International Conference on the Computation of Electromagnetic Fields (COMPUMAG), Article No. 107, 2023.

[C112] Won-Kwang Park, **On the identification of small anomaly without background information**, Proceedings of the 26th International Workshop on Electromagnetic Nondestructive Evaluation (ENDE), Article No. 110, 2023.

[C113] Janghoon Jeong, Won-Kwang Park, and Seong-Ho Son, **ANN based microwave imaging for object localization in cluttered environment**, Proceedings of the The Korean Institute of Communications and Information Sciences (KICS) Summer Conference, 763–764, 2023.

[C114] Won-Kwang Park, **Application of MUSIC algorithm for identifying unknown objects from limited-aperture configuration**, Abstract of the PhotonIcs & Electromagnetics Research Symposium (PIERS) in Prague, Article No. 230116025725, 2023.

[C115] Won-Kwang Park, **Application of MUSIC algorithm in microwave imaging without switching device**, Abstract of the 10th International Congress on Industrial and Applied Mathematics (ICIAM), Article No. CT152, 2023.

[C116] Won-Kwang Park, **On the identification of small anomaly via MUSIC algorithm without background information**, Abstract of the Applied Inverse Problems (AIP), 185, 2023.

[C117] Won-Kwang Park, **On the identification of unknown targets via Kirchhoff migration**, Proceedings of the 21st International Symposium on Applied Electromagnetics and Mechanics (ISEM), accepted.

Performed / Contributed Presentations

[P1] **On the imaging of two-dimensional dielectric thin inclusions by a MUSIC-type algorithm from measured scattered field data**, Conférence annuelle de l'ASCoF, May 2008, Bordeaux, France (Received Best Paper Award).

[P2] **On the imaging of two-dimensional thin inclusions by a MUSIC-type algorithm from boundary measurements**, 13th International Workshop on Electromagnetic Nondestructive Evaluation (ENDE 2008), June 2008, Seoul, Korea.

[P3] **Non-iterative MUSIC type algorithm for reconstructing two dimensional thin dielectric inclusions**, EU-Korea Conference on Science and Technology, August 2008, Heidelberg, Germany.

[P4] **Non-iterative imaging of electromagnetic thin inclusions**, DIGITEO Forum, October 2008, Gif-sur-Yvette, France.

[P5] **Fissures minces et la faisabilité de leur imagerie électromagnétique non-itérative**, Journée Thématique GDR ONDES GT1–GT3 et Intergroupe ONDES–ISIS, December 2008, Paris, France.

[P6] **MUSIC-type imaging of small perfectly conducting cracks**, Mini workshop sur les méthodes d'imagerie, Laboratoire Ondes et Acoustique, ESPCI, April 2009, Paris, France.

[P7] **Asymptotic imaging of perfectly conducting cracks**, Institut Fresnel, April 2009, Marseille, France.

- Invited by Anne Sentenac.

[P8] **Non-iterative imaging of perfectly conducting cracks**, Karl Franzens University of Graz, April 2009, Graz, Austria.

- Invited by Karl Kunisch.

[P9] **Location search algorithm of thin conductivity inclusions**, Conférence Annuelle de l'ASCoF, May 2009, Lyon, France (Received Best Paper Award).

[P10] **On the level-set evolution of thin electromagnetic screens in the wave propagation regime** (contributed presentation), Workshop on Electromagnetic Inverse Problems, June 2009, The University of Manchester, UK.

[P11] **Level-set method for reconstruction of thin electromagnetic inclusions**, EU-Korea Conference on Science and Technology, August 2009, Reading, Wokefield Park, UK (Received Best Paper Award).

[P12] **Imaging of scattering screens via fast methods** (contributed presentation), International Conference on Electromagnetics in Advanced Applications (ICEAA 2009), September 2009, Torino, Italy.

[P13] **Non-iterative imaging of thin dielectric inclusions buried within a half-space: limited aspect problem**, Second SFB Status Seminar, November 2009, Schloss Röthelstein, Graz, Austria.

[P14] **Sur une imagerie électromagnétique rapide d'écrans minces en demi-espace affecté d'inclusions aléatoires** (contributed presentation), GDR ONDES-GT7, Manipulation spatiale et temporelle des ondes pour l'imagerie, Institut Fresnel, May 2010, Marseille, France.

[P15] **On the imaging of two-dimensional thin inclusions and perfectly conducting cracks: development of non-iterative imaging algorithm**, New faculty workshop, Kookmin University, October 2010, Seoul, Korea.

[P16] **Imaging schemes for perfectly conducting cracks**, 2010 Global KMS International Conference, Pohang University of Science and Technology (POSTECH), October 2010, Pohang, Korea.

[P17] **Topological derivative concept for imaging of thin inclusions**, KIEES Conference, Dankook University, November 2010, Cheonan, Korea.

[P18] **Non-iterative electromagnetic imaging of perfectly conducting screens from limited range far-field data**, International Symposium on Antennas and Propagation (ISAP), Lotte Hotel Jeju, October 2011, Jeju, Korea.

[P19] **Non-iterative imaging of perfectly conducting crack: analysis of topological derivative imaging function**, 2011 KIEES Conference, Korea International Exhibition Center (KINTEX), November 2011, Goyang, Korea.

[P20] **An accurate location search of small electromagnetic inhomogeneities buried in a half-space**, KSIAM 2012 Spring Conference, Ewha Womans University, May 2012, Seoul, Korea.

[P21] **Multi-frequency topological derivative for imaging of perfectly conducting cracks**, 29th Medical Imaging Seminar, Department of Computational Science and Engineering, Yonsei University, June 2012, Seoul, Korea.

- Invited by Jin Keun Seo.

[P22] **Fast imaging of thin, curve-like electromagnetic inclusions via topological derivative concept**, 2012 KMS fall meeting, Daejeon Convention Center, October 2012, Daejeon, Korea.

[P23] **Structure of single- and multi-frequency imaging functions**, KIEES Conference, COEX, November 2012, Seoul, Korea.

[P24] **Shape reconstruction of thin electromagnetic inhomogeneities via multi-frequency topological derivative**, KSIAM 2013 Spring Conference, Yonsei University, May 2013, Seoul, Korea.

[P25] **A relationship between MUSIC-type imaging functional and Bessel functions** (contributed poster presentation), KSIAM 2013 Spring Conference, Yonsei University, May 2013, Seoul, Korea (Received Best Poster Award).

[P26] **Subspace migration imaging of small perfectly conducting cracks in the limited-view inverse scattering** (contributed poster presentation), KSIAM 2013 Spring Conference, Yonsei University, May 2013, Seoul, Korea.

[P27] **MUSIC-type imaging in the limited-view inverse scattering**, KIEES summer conference, Ramada Plaza Jeju, Jeju, August 2013, Korea.

[P28] **Asymptotic properties of MUSIC-type imaging in two-dimensional inverse scattering from thin inclusions or cracks: Structure of MUSIC algorithm**, National Institute for Mathematical Sciences, Daejeon, October 2013, Korea.

- Invited by Chi Young Ahn.

[P29] **Fast imaging of perfectly conducting, arc-like cracks via multi-frequency topological derivative**, Annual Meeting of KSIAM, Seogwipo KAL Hotel, November 2013, Jeju, Korea.

[P30] **Structure of MUSIC algorithm for imaging of small perfectly conducting cracks in limited-view inverse scattering problem** (contributed poster presentation), Annual Meeting of KSIAM, Seogwipo KAL Hotel, November 2013, Jeju, Korea (Received Best Poster Award).

[P31] **Introduction to MUSIC algorithm**, National Institute for Mathematical Sciences, Daejeon, October 2013, Korea.

- Invited by Chi Young Ahn.

[P32] **Asymptotic properties of MUSIC-type imaging in two-dimensional inverse scattering from thin electromagnetic inclusions: structure of MUSIC-type imaging in full- and limited-view problems**, Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité, January 2014, France.

- Invited by Dominique Lesselier.

[P33] **Multi-frequency subspace migration for imaging of perfectly conducting, arc-like cracks in full- and limited-view inverse scattering problems**, Laboratoire des Signaux et Systèmes, École Supérieure d'Électricité, January 2014, Gif-sur-Yvette, France.

- Invited by Dominique Lesselier.

[P34] **Asymptotic properties of MUSIC-type imaging in two-dimensional inverse scattering from thin electromagnetic inclusions**, School of Computational Sciences, Korea Institute for Advanced Study (KIAS), February 2014, Seoul, Korea.

- Invited by Hyenkyun Woo.

[P35] **MUSIC algorithm for imaging of perfectly conducting cracks in limited-view inverse scattering problems**, Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology (KAIST), May 2014, Daejeon, Korea.

[P36] **Analysis of weighted multi-frequency subspace migration for a fast imaging of thin electromagnetic inhomogeneities**, KSIAM 2014 Spring Conference, Seoul National University, May 2014, Seoul, Korea.

[P37] **Asymptotic structure of two-dimensional MUSIC-type imaging functional**, Annual meeting of the KSIAM, International Convention Center Jeju, November 2014, Jeju, Korea.

[P38] **A study on the topological derivative-based imaging of thin electromagnetic inhomogeneities in limited-aperture problems**, KAIST–CMC, PDE/Inverse Problem Workshop, KAIST, December 2014, Daejeon, Korea.

[P39] **MUSIC-type imaging algorithm with inaccurate frequency**, KSIAM 2015 Spring Conference, Sungkyunkwan University, May 2015, Suwon, Korea.

[P40] **Detection of small cracks via subspace migration with unknown frequency** (contributed poster presentation), KSIAM 2015 Spring Conference, Sungkyunkwan University, May 2015, Suwon, Korea.

[P41] **Detection of small cracks with unknown frequency** (contributed poster presentation), KIEES summer conference, Ramada Plaza Jeju, August 2015, Jeju, Korea (Received Best Poster Award).

[P42] **A necessary condition for application of topological derivative in limited-aperture inverse scattering problem**, Progress In Electromagnetics Research Symposium, Top Hotel Praha, August 2015, Prague, Czech Republic.

[P43] **Subspace migration for imaging of thin electromagnetic inhomogeneities without shape information**, Progress In Electromagnetics Research Symposium, Top Hotel Praha, August 2015, Prague, Czech Republic.

[P44] **Subspace migration weighted by natural logarithmic function**, The Korean Institute of Electromagnetic Engineering Science summer conference, Ramada Plaza Jeju, August 2015, Jeju, Korea.

[P45] **Inverse Scattering Problem: Recent development of MUSIC-type imaging technique**, Kongju National University, November 2015, Kongju, Korea.

- Invited by Yong-Ki Ma.

[P46] **Subspace migration without a priori information of thin inhomogeneity**, Annual meeting of the KSIAM, Novotel Ambassador, November 2015, Busan, Korea.

[P47] **MUSIC algorithm for imaging of inhomogeneities surrounded by random scatterers: numerical study**, The 2nd International Conference on Applied Electromagnetic, Deevana Plaza Krabi Aonang, December 2015, Krabi, Thailand.

[P48] **Introduction to MUSIC algorithm and its application in inverse scattering problem**, Medical Imaging Computing Seminar in Yonsei University, April 2016, Seoul, Korea.

- Invited by Jin Keun Seo.

[P49] **Singular Value Decomposition and its application in inverse scattering problem**, Seminars in Special Topics, Kookmin University, May 2016, Seoul, Korea.

- Invited by Chang Bum Kim.

[P50] **On the imaging of an open sound-hard arc in inverse acoustic scattering problem**, KSIAM 2016 Spring Conference, National Institute for Mathematical Sciences, May 2016, Daejeon, Korea.

[P51] **Influence of distribution of incident and observation directions in subspace migration** (contributed poster presentation), KSIAM 2016 Spring Conference, National Institute for Mathematical Sciences, May 2016, Daejeon, Korea.

[P52] **MUSIC algorithm for imaging perfectly conducting crack in limited-view inverse scattering problem**, the 8th International Conference on Inverse Problems and Related Topics, Ewha Woman University, June 2016, Seoul, Korea.

[P53] **On the imaging of arc-like perfectly conducting crack** (contributed poster presentation), KIEES summer conference, Maison Glad Jeju, June 2016, Jeju, Korea (Received Best Poster Award).

[P54] **Shape identification of arc-like perfectly conducting cracks in limited-view inverse scattering problem**, The 12th World Congress on Computational Mechanics, COEX, July 2016, Seoul, Korea.

[P55] **Application of MUSIC for a fast imaging of inhomogeneities surrounded by random scatterers**, Electronics and Telecommunications Research Institute (ETRI), July 2016, Daejeon, Korea.

- Invited by Seong-Ho Son.

[P56] **Application of MUSIC for shape identification of dielectric extended targets in inhomogeneous medium**, Progress in Electromagnetics Research Symposium, Shanghai International Convention Center, August 2016, Shanghai, China.

[P57] **Detection of small dielectric inhomogeneities enclosed by random scatterers via Kirchhoff and subspace migration**, Progress in Electromagnetics Research Symposium, Shanghai International Convention Center, August 2016, Shanghai, China.

[P58] **Multi-frequency MUSIC for searching small dielectric inclusions surrounded by random scatterers**, Progress in Electromagnetics Research Symposium, Shanghai International Convention Center, August 2016, Shanghai, China.

[P59] **Shape identification of perfectly conducting, arc-like crack in Transverse Electric mode**, URSI Asia-Pacific Radio Science Conference, Grand Hilton Seoul Hotel, August 2016, Seoul, Korea.

[P60] **Application of MUSIC for anomaly detection in microwave imaging**, International Conference for the 70th Anniversary of KMS, Seoul National University, October 2016, Seoul, Korea.

[P61] **MUSIC algorithm for anomaly detection in inverse scattering problem**, Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology (KAIST), November 2016, Daejeon, Korea.

- Invited by Mikyoung Lim.

[P62] **MUSIC algorithm for imaging anomaly in microwave imaging**, Annual meeting of the KSIAM, Seogwipo KAL Hotel, November 2016, Jeju, Korea.

[P63] **MUSIC algorithm for small anomaly detection in microwave imaging**, The 2nd Winter School in Imaging Science, Sonofelice, Daemyung Resort, January 2017, Gangwon Province, Korea.

[P64] **Linear sampling method for imaging small or crack-like defects: investigation of a relationship with Bessel functions**, Laboratoire Génie électrique et électronique de Paris (GeePs), CentraleSupélec, Université Paris-Sud, February 2017, Gif-sur-Yvette Cedex, France.

- Invited by Marc Lambert.

[P65] **Ground penetrating radar–microwave tomography**, 1st CSE-NIMS Workshop, Department of Computational Science and Engineering, Yonsei University, March 2017, Seoul, Korea.

[P66] **A novel study on direct sampling method for retrieving multiple targets**, Department of Mathematics, Inha University, April 2017, Incheon Metropolitan City, Korea.

- Invited by Hyundae Lee.

[P67] **Multi-frequency topological derivative strategy for imaging two dimensional perfectly conducting, arc-like crack**, the 9th Applied Inverse Problems conference, Zhejiang University, June 2017, Hangzhou, China.

[P68] **A study on direct sampling method for retrieving multiple targets**, Europe-Korea Conference on Science and Technology (EKC), Kistamässan, July 2017, Stockholm, Sweden.

[P69] **A novel study on direct sampling method for imaging multiple targets**, the 2nd International Conference on Applied Mathematics, Simulation and Modelling (AMSM), New Dara Boutique Hotel & Residence, August 2017, Phuket, Thailand.

[P70] **Imaging of small anomaly via direct sampling method**, KIEES summer conference, Ramada Plaza Jeju, August 2017, Jeju, Korea.

[P71] **Analysis of direct sampling method corresponding to the length of crack** (contributed poster presentation), KIEES summer conference, Ramada Plaza Jeju, August 2017, Jeju, Korea.

[P72] **Fast location search of small anomaly by using microwave**, the 18th International Symposium on Applied Electromagnetics and Mechanics (ISEM), Le Majestic - Centre des Congrès, Chamonix Mont-Blanc, September 2017, Haute-Savoie, France.

[P73] **Linear sampling method for localizing small anomaly in microwave imaging**, the 22nd International Workshop on Electromagnetic Nondestructive Evaluation (ENDE), CEA LIST, September 2017, Gif-sur-Yvette, France.

[P74] **Fast localization of small inhomogeneity without diagonal elements of MSR matrix**, International Symposium on Antennas and Propagation (ISAP), The Phuket Graceland Resort & Spa, November 2017, Phuket, Thailand.

[P75] **Real-time detection of moving anomaly in microwave tomography: analysis and real-data experiment**, A3 Workshop on Applied Inverse Problems and Related Topics, Graduate School of Mathematical Sciences, University of Tokyo, November 2017, Tokyo, Japan.

[P76] **Deep learning for anomaly detection in microwave tomography**, Department of Computational Science and Engineering, Yonsei University, December 2017, Seoul, Korea.

- Invited by Jin Keun Seo.

[P77] **Real-time anomaly detection in microwave tomography**, The 3rd Winter School in Imaging Science, Sonofelice Vivaldi Park, January 2018, Gangwon Province, Korea.

[P78] **Application of direct sampling method in microwave tomography: analysis, feasibilities and limitations**, Inverse Problems and Medical Imaging 2018, Graduate School of Mathematical Sciences, University of Tokyo, February 2018, Tokyo, Japan.

[P79] **Recent progress on direct sampling method in microwave imaging**, National Institute for Mathematical Sciences, April 2018, Daejeon, Korea.

- Invited by Taeyoung Ha.

[P80] **Application of direct sampling method in microwave imaging**, Ulsan National Institute of Science and Technology (UNIST), May 2018, Ulsan, Korea.

- Invited by Yunho Kim.

[P81] **MUSIC algorithm for imaging small anomaly from scattering parameter: real-data experiments**, Progress In Electromagnetics Research Symposium, Toyama International Conference Center, August 2018, Toyama, Japan.

[P82] **Real-time microwave imaging of small anomalies without diagonal elements of the scattering matrix**, International Conference on Inverse Problems and Related Topics, Department of Electrical & Computer Engineering, National University of Singapore, August 2018, Singapore.

[P83] **Real-time microwave imaging of moving anomaly from scattering matrix**, Technology & Innovation Centre, EU-Korea Conference on Science and Technology, University of Strathclyde, August 2018, Glasgow, Scotland.

[P84] **Real-time microwave imaging of moving anomalies from scattering matrix**, IEEE AP-S Fukuoka Chapter special lecture, Kyushu Sangyo University, September 2018, Fukuoka, Japan.

- Invited by Kenichi Ishida.

[P85] **MUSIC algorithm for imaging small anomaly from scattering matrix**, 71st Joint Conference of Electrical, Electronics and Information Engineers in Kyushu, Oita University, September 2018, Oita Prefecture, Japan.

- Invited by Kenichi Ishida.

[P86] **Application of MUSIC algorithm in microwave imaging**, Joint Meeting of the Korean Mathematical Society (KMS) and the German Mathematical Society (DMV), COEX, October 2018, Seoul, Korea.

[P87] **Real-time tracking of moving anomaly from scattering parameters**, the 9th International Symposium on Antennas and Propagation (ISAP), Paradise Hotel Busan, October 2018, Busan, Korea.

[P88] **Multi-frequency direct sampling method for imaging short linear perfectly conducting cracks**, Annual Meeting of the KSIAM, Ramada Plaza Jeju, November 2018, Jeju, Korea.

[P89] **Direct sampling method in inverse scattering problem: from theory to real-world application**, Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology (KAIST), November 2018, Daejeon, Korea.

- Invited by Mikyoung Lim.

[P90] **MUSIC algorithm without diagonal elements of scattering matrix**, 8th international conference on advances in computing, electronics and communication, G Towel Hotel, January 2019, Kuala Lumpur, Malaysia.

[P91] **Direct sampling method in limited-view inverse scattering problem**, National Institute for Mathematical Sciences, January 2019, Daejeon, Korea.

- Invited by Taeyoung Ha.

[P92] **Introduction to factorization method for a non-iterative imaging in inverse scattering problem**, National Institute for Mathematical Sciences, January 2019, Daejeon, Korea.

- Invited by Taeyoung Ha.

[P93] **Application of direct sampling method in microwave imaging**, KIEES Winter Conference, High1 Resort, February 2019, Gangwon Province, Korea.

[P94] **Effects on the diagonal elements of scattering matrix in microwave imaging**, A3 Workshop on challenging issue & future direction in medical imaging and inverse problems, Seo Medical Imaging Lab, April 2019, Mokpo, Korea.

[P95] **A study on the effect of diagonal elements of scattering matrix in microwave imaging**, PhotonIcs & Electromagnetics Research Symposium (PIERS) in Rome, Faculty of Engineering, University of Rome "La Sapienza", June 2019, Rome, Italy.

[P96] **MUSIC algorithm for localizing small anomalies from the scattering matrix at a microwave frequency**, 10th Applied Inverse Problems Conference, Université Grenoble-Alpes, July 2019, Grenoble, France.

[P97] **Imaging of unknown anomaly via scattering matrix with and without diagonal elements**, KIEES summer conference, International Convention Center Jeju, August 2019, Jeju, Korea.

[P98] **Imaging of unknown anomaly via scattering matrix with and without diagonal elements**, the 10th International Symposium on Antennas and Propagation (ISAP), Xi'an Paradise Resort, October 2019, Xi'an, China.

[P99] **Non-iterative microwave imaging without background information**, Annual meeting of the KSIAM, Yeosu Venezia Hotel & Resort, November 2019, Yeosu, Korea.

[P100] **A real-time microwave imaging via scattering matrix**, Department of Information and Telecommunication Engineering, Incheon National University, November 2019, Incheon Metropolitan City, Korea.

- Invited by Sungtek Kahng.

[P101] **Real-time imaging of moving anomaly from scattering matrix**, PhotonIcs & Electromagnetics Research Symposium (PIERS) in Xiamen, Swiss Grand Xiamen, December 2019, Xiamen, China.

[P102] **A study on orthogonality sampling method: application to the limited-aperture inverse scattering problem and microwave imaging**, National Institute for Mathematical Sciences, February 2020, Daejeon, Korea.

- Invited by Chi Young Ahn.

[P103] **Application of MUSIC algorithm in real-world microwave imaging**, KIEES summer conference, Ramada Plaza Jeju, August 2020, Jeju, Korea.

[P104] **Application of orthogonality sampling method for identifying small anomaly from scattering parameters**, Annual meeting of the KSIAM, Seogwipo KAL Hotel, November 2020, Jeju, Korea.

[P105] **Localization of small anomalies via othogonality sampling method from scattering pararmeters** (contributed poster presentation), KIEES Winter Conference, Yeosu EXPO Convention Center, February 2021, Yeosu, Korea.

[P106] **Application of MUSIC algorithm in real-world microwave imaging**, Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology (KAIST), July 2021, Daejeon, Korea.

- Invited by Mikyoung Lim.

[P107] **Orthogonality sampling method for localizing unknown anomalies in microwave imaging**, (contributed poster presentation), KIEES Summer Conference, Ramada Plaza Jeju, August 2021, Jeju, Korea.

[P108] **Application of the orthogonality sampling method in real-world microwave imaging** (virtual presentation), 34th General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science (URSI), Faculty of Engineering, University of Rome "La Sapienza", September 2021, Rome, Italy.

[P109] **Effect of the observation direction configuration in orthogonality sampling method**, Annual meeting of the KSIAM, Busan Exhibition & Convention Center (BEXCO), December 2021, Busan, Korea.

[P110] **Design of an orthogonality sampling method in microwave imaging for a fast identification of small anomaly**, the 14th International Conference on Future Information & Communication Engineering, Ramada Jeju City Hotel, January 2022, Jeju, Korea (Received Best Paper Award).

[P111] **MUSIC algorithm for a real-time detection of small anomaly from limited-aperture measurement data** (contributed poster presentation), KIEES Winter Conference, Pheonix Park, February 2022, Pyeongchang, Korea.

[P112] **Effect of the observation directions configuration in the orthogonality sampling method** (contributed poster presentation), KIEES Winter Conference, Pheonix Park, February 2022, Pyeongchang, Korea.

[P113] **Orthogonality sampling method for identifying small anomalies in microwave imaging** (virtual presentation), the 16th European Conference on Antennas and Propagation (EuCAP), Convened Session: Unconventional techniques and applications for inverse scattering problems, IFEMA Palacio Municipal, April 2022, Madrid, Spain.

[P114] **A real-time identification of small conductivity inhomogeneity via topological derivative** (virtual presentation), the 10th International Conference "Inverse Problems: Modeling and Simulation", Minisymposium M24: Inverse Problems via Topological Derivatives, Paradise-Bay Hotel, May 2022, Malta.

[P115] **Real-time tracking of moving objects in real-world microwave imaging**, KSIAM 2022 Spring Conference, Special Session: Inverse Problems, IBS Science Culture Center, May 2022, Daejeon, Korea.

[P116] **Application of the orthogonality sampling method in microwave imaging without background information** (contributed poster presentation), EU-Korea Conference on Science and Technology, Palais du Pharo, July 2022, Marseille, France (Received Best Paper Award).

[P117] **Application and analysis of the orthogonality sampling method for anomaly detection with inaccurate wavenumber** (contributed poster presentation), KIEES summer conference, Ramada Plaza Jeju, August 2022, Jeju, Korea (Received Best Poster Award).

[P118] **Fast anomaly detection via the orthogonality sampling method in microwave imaging** (contributed poster presentation), IEEE International Symposium on Radio-Frequency Integration Technology (RFIT), Hanwha Resort Haeundae, August 2022, Busan, Korea.

[P119] **Detection of small anomaly using MUSIC algorithm without switching device**, The 15th International Conference on Future Information & Communication Engineering (ICFICE), Nha Trang Horizon Hotel, January 2023, Nha Trang, Vietnam.

[P120] **A novel study on orthogonality sampling method** (contributed poster presentation), KIEES Winter Conference, Havichi Hotel & Resort, February 2023, Jeju, Korea.

[P121] **Application and analysis of the music algorithm in real-world microwave imaging**, Department of Mathematics, Pusan National University, February 2023, Busan, Korea.

- Invited by Ji-Hun Yoon.

[P122] **Fast imaging of single, small conductivity inhomogeneity via topological derivative concept**, KSIAM 2023 Spring Conference, Special Session: Inverse Problems, Alpensia Resort, May 2023, Pyeongchang, Korea.

[P123] **On the application of MUSIC algorithm for identifying small anomaly without background information**, The 24th International Conference on the Computation of Electromagnetic Fields (COMPUMAG), Kyoto International Conference Center (ICC Kyoto), May 2023, Kyoto, Japan.

[P124] **Detection of small anomaly using MUSIC algorithm without switching device in microwave imaging**, National Institute for Mathematical Sciences, Daejeon, June 2023, Korea.

- Invited by Chi Young Ahn.

[P125] **On the identification of small anomaly without background information**, Proceedings of the 26th International Workshop on Electromagnetic Nondestructive Evaluation (ENDE), Thessaloniki Concert Hall, June 2023, Thessaloniki, Greece.

[P126] **Application of MUSIC algorithm for identifying unknown objects from limited-aperture configuration**, Special Session on Inverse Problems in Antenna and Scattering: Theory, Challenges and Applications, PhotonIcs & Electromagnetics Research Symposium (PIERS) in Prague, Prague Congress Center, July 2023, Prague, Czech Republic.

[P127] **Application of MUSIC algorithm in microwave imaging without switching device**, The 10th International Congress on Industrial and Applied Mathematics (ICIAM), Waseda University, August 2023, Tokyo, Japan.

[P128] **On the identification of small anomaly via MUSIC algorithm without background information**, The 11th Applied Inverse Problems Conference in Göttingen, University of Göttingen, September 2023, Göttingen, Germany.

[P129] **Topological derivative strategy for a fast imaging of thin, curve-like electromagnetic inhomogeneities**, National Institute for Mathematical Sciences, Daejeon, September 2023, Korea.

- Invited by Chi Young Ahn.

Miscellaneous

arXiv	Articles including preprints in arXiv
Google Scholar	Some information in Google Scholar
Mathematics Genealogy Project	Mathematical Genealogy of Mine
MathSciNet	Articles indexed by MathSciNet
ORCID	ORCID Records of Mine
Research Gate	Some information in Research Gate
YouTube	Online lecture in YouTube

Last modified on October 22, 2023