Curriculum Vitae

Hyeonbae KANG
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Fellow, Korean Academy of Science and Technology

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EDUCATION

Jan. 1984 - Aug. 1989	**Ph.D. in Mathematics**, University of Wisconsin-Madison, USA (Thesis Advisor: Alexander Nagel)
Mar. 1982 - Feb. 1984	**M.S. in Mathematics**, Seoul National University, Seoul, Korea
Mar. 1978 - Feb. 1982	**B.S. in Mathematics**, Seoul National University, Seoul, Korea

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POSITIONS HELD

2008.09 - present	**Jungseok Chair Professor**, Inha University, Incheon, Korea
2019.08 - 2019.12	**High-end foreign expert**, Central South University, Changsha, P.R. China
2011.03 - 2019. 02	**Director**, Institute of Applied Mathematics, Inha University
2011 -	**Fellow**, Korean Academy of Science and Technology
July, 2011	**Visiting Professor**, Ecole Normale Superieure, France
1997.09 - 2008.08	**Assistant/Associate/Full Professor**, Seoul National University, Korea
Feb & July, 2008	**Visiting Scientist**, Ecole Polytechnique, France
2001.12 - 2002.06	**Visiting Professor**, University of Washington, Seattle, USA
2001.08 - 2001.12	**General member**, MSRI, USA
1994.03 - 1997.08	**Assistant/Associate Professor**, Korea University, Seoul, Korea
1991.03 - 1994.02	**Assistant Professor**, Soongsil University, Seoul, Korea
1989.09 - 1991.02	**Visiting Assistant Professor**, University of Minnesota, USA

Administration and etc

2004.10 -2006. 07	**Associate Dean of Faculty of Liberal Educations** Seoul National University
2007.01 - 2008.12	**Secretary General** of Korean Mathematical Society
2008 - 2010	Bidding Committee & Preparation Committee for ICM 2014
2010 - 2014	Organizing Committee (Executive Committee) for ICM 2014
2009 - 2011	**Review Board** for National Research Foundation
2011 - 2015	**Scientific Committee** ICIAM 2015 (Beijing, Inter. Congress of Ind. and Appl. Math.)
2023	ICIAM 2023 (Kyoto), Prize Canvassing Committee

Awards

2000	**KMS Award for Excellent Research Paper** (Korean Mathematical Society)
2006	**KMS Award for Academic Achievement** (Korean Mathematical Society)
2006	**Outstanding Research Award** (College of Natural Sciences, Seoul National University)
2008	**Outstanding Research 50 in Sciences and Technology** (Korean Ministry of Education, Sciences and Technology)
2010	**Outstanding Research Award** (Inha University)
2010	**Korean Science Award** (Presidential Award)
2011	**Inchon Award** (Inchon Foundation)
2015	**Kyung-ahm Academic Award** (Kyung-ahm Foundation)
2015	**Kumkok-KSIAM Award** (KSIAM)
2022	**ICM2022, Invited Lecture**

Editorial Board (current)

Section Editor, Partial Differential Equations and Applications

Research Statements

I mostly deal with mathematical problems arising from various area of applications such as inverse problems and imaging, non-destructive evaluation, and continuum mechanics.

FIELDS OF INTEREST

Spectral theory-analysis and geometry
Potential theory
Inverse Problems and Mathematics for Imaging
Integral Equations
Partial Differential Equations
Asymptotic Analysis
Theory of Composites and Homogenization

Recent major achievements include

- Proofs of conjectures of Pólya-Szegö and Eshelby, and their extensions

- Enhancement of near cloaking by the Generalized Polarization Tensor vanishing structures

- Development of spectral approach to cloaking by anomalous localized resonance

- Reconstruction of the shape and the material properties using generalized polarization tensors

- Multi-static imaging of small and extended objects

- Progress on the narrow escape problem arising from the Mathematical Biology

- Development of asymptotic imaging modalities

- Asymptotic spectral analysis and applications to phononic/photonic band gap problems

- Optimal estimates of gradient (stress) blow-up

- Mathematical analysis and reconstruction for emerging medical imaging modalities including the photo-acoustic imaging and MRElastography

- Spectral analysis for the Neumann-Poincaré operator

- New optimal bounds on the volume fraction by boundary measurements

My current research projects include

- Spectral analysis and geometry for the Neumann-Poincaré operator and plasmon resonance

- Analysis of stress concentration and field enhancement

- Neutral and weakly inclusion problem

Conference Organized (since 2005)

- 2005, June 22 - 24, Workshop in Seoul-Inverse Problems, Multi-scale Analysis and Homogenization

- 2006, July 3 - 7, Inverse Problems in Applied Sciences, Hokkaido University (Scientific Committee)

- 2008, Oct. 9-12, International conference on inverse problems and its applications, Fudan University, Sanghai, China

- 2008, June 18-20, Workshop on Imaging of Microstructure, Institute of Henri Poincare, Paris

- 2008, Feb. 14-15, Franco-Korean Days of Mathematical Analysis and its Applications, Institute of Henri Poincare

- 2009, Aug. 17-20, International conference on inverse problems and its applications, Hanbat National University, Daejeon, Korea

- 2009, April 2-4, Finnish-Korean Symposium on Inverse Problems, Seoul National University, Korea

- 2010 July & August, Thematic Program on Mathematical and Statistical Methods on Imaging, NIMS, Korea

- 2010 Aug. 11-14, Workshop on Mathematical and Statistical Methods on Imaging, Seoul National University, Korea

- 2011, June 28-July 1, Workshop on multi-scale and high-contrast PDE: from modelling, to mathematical analysis, to inversion, Oxford University

- 2012, Feb. 16-17, NTU-Inha 2012 Bilateral Conference on Analysis and Scientific Computing, National Taiwan Univ.

- 2013, July 1-5, Applied Inverse Problem Conference, KAIST, Korea

- 2014, Aug. 7-9, Imaging, Multi-scale and high contrast PDEs, Seoul ICM 2014 Satellite Conference, NIMS (National Institute for Mathematical Sciences), Daejeon, Korea.

- 2014, Aug. 13-21, International Congress of Mathematicians, The Korea Science and Technology Center, Seoul, Korea (Executive Committee),

- 2015, Feb. 26-28, International workshop on Neumann-Poincare operator and related fields, Inha Univ.

- 2018, Feb. 8-10, International Workshop: The Neumann-Poincare Operator, Plasmonics, and Field Concentrations, Ramada Jeju Hamduck Hotel, Jeju, S. Korea.

- 2018, Oct. 18-20, The 5th Joint Workshop of A3 Foresight Program, Mathematics of Fluid Dynamics and Material Sciences, Lankai Sanpine Hotel, Gangneung, S. Korea.

- 2019, March 30, Mini-workshop, Neumann-Poincare operator and related topics, Inha University.

- 2019, July 26-29, A3 Foresight Program workshop "Modeling and Simulation of Hierarchical and Heterogeneous Flow Systems with Applications to Materials Science VI, Sendai, Japan.

- 2019, Sep. 27, Mini-workshop, Neumann-Poincare operator and related topics, Central South University, Changsha, China.

Selected Plenary or Invited Addresses (since 2005)

- 2022, ICM Invited Lecture

- 2021, July 8-9, Series of Lectures on Waves and Imaging (IV), ETH, online

- 2021, May 27, Workshop on Boundary Integral Operator: Theory and Application, Maxwell Institute, online

- 2021, May 6-9, International Conference on Partial Differential Equations Related to Material Science, online

- 2019, May 20-24, Geometric Properties for Parabolic and Elliptic PDEs (6th Italian-Japanese workshop), Palazzone in Cortona, Italy

- 2018, Sept. 7-10, International Workshop on Inverse Problems for Partial Differential Equations, Southeast University, Nanjing, China

- 2017, June. 12-18, Control Theory, Integral Geometry and Inverse Problems, Euler International Mathematical Institute, St. Petersburg, Russia.

- 2017, April 24-28, Emerging Topics in Optics, IMA, USA.

- 2016, June 27-July 1, The 8th International Conference on Inverse Problems and Related Topics, Ewha womans University, Seoul.

- 2015, Sept. 28-Oct. 2, Inverse Problems, Imaging and PDE, the Institute for Advanced Study, Hong Kong University of Science and Technology (HKUST).

- 2014, Aug. 25-Sept. 5, CIMPA-INDONESIA research school (Mathematical and Statistical Methods for Imaging), Institut Teknologi Bandung, Indonesia (mini-course)

- 2014, June 7-9, Third International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, China.

- 2014, May 26-29, From Mechanics to Geometry, in honor of Marshall Slemrod's 70th birthday, Seoul National Univ., Seoul, Korea.

- 2014, March 18-21, British Council Researchers Links Workshop on Soft Matter: Analysis, Applications and Challenges, National Institute for Mathematical Sciences (NIMS), Daejeon, Korea.

- 2014, Feb. 10-14, Korea PDE winter school, NIMS, Daejeon, Korea (5 hours lecture)

- 2013, Dec. 5-6, CMC inaugural conference, KAIST, Korea

- 2013, Nov. 20-22, Geometry of solutions of partial differential equations, RIMS, Kyoto Univ., Japan.

- 2013, Sept. 22-23, Northeastern Asian Symposium on Methods and Modeling for High Performance Scientific Computing, Sichuan Univ., Chengdu, China.

- 2013, May 27-31, Applied analysis for the material sciences-Conference in honor of Michael Vogelius 60th birthday, Luminy, France.

- 2013, Feb. 20-22, Session "États de la Recherche", Inverse problems and imaging, Societe Mathematique de France, Institute Henri Poincare (5 hours lecture)

- 2012, Sept. 17-21, International Conference on Inverse Problems and Applications in honor of Gunther Uhlmann's 60th birthday, Hangzhou, China.

- 2012, July 30-Aug.3, Inverse Problems and PDE Control, Sichuan Univ., Chengdu, China.

- 2012, May 22-25, China-Japan-Korea International conference on mathematical biology, Busan National U., Korea.

- 2012, Feb. 16-17, NTU-Inha 2012 Bilateral Conference on Analysis and Scientific Computing, National Taiwan Univ.

- 2011, Dec. 19-21, Imaging, wave propagation in complex media, and optimal control under uncertainties, Ecole Normale Superieure, Paris

- 2011, Dec. 13-16, Finnish-Japanese-Korean workshop on inverse problems, Univ. of Helsinki

- 2011, Aug. 1-5, Inverse Problems in Analysis and Geometry, Isaac Newton Institute for Mathematical Sciences, UK.

- 2011, June 17-21, International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, China

- 2011, May 23-27, 6th Applied Inverse Problems Conference, Texas A & M Univ.

- 2011, May 2-3, The 11th International Workshop on Differential Equations, Chonnam National Univ., Korea

- 2010, Dec. 13-17, International conference on inverse problems (ICIP2010), City Univ. of Hong Kong.

- 2010, Nov. 8-12, Inverse Problems: Theory and Applications, MSRI, USA.

- 2010, Feb. 21-26, Some mathematical problems of material science: effects of multiple scales and extreme aspect ratios, Banff, Canada.

- 2010, March 18-20, The 10th international workshop on differential equations - in memory of the late Prof. Jeongseon Baek, Chonnam National University, Korea.

- 2010, April 26-29, International Conference on Inverse Problems, Wuhan Univ., China.

- 2010, June 11-14, Fourth Workshop on Nonlinear Partial Differential Equations: Analysis, Computation and Applications, Taipei.

- 2010, June 28-July 2, Fifth Pacific Rim Conference of Mathematics, Stanford University, USA

- 2009, Feb. 16-17, 10th Northeastern Symposium on Mathematical Analysis, Sendai, Japan.

- 2009, Mar. 2-6, 4th International Conference on High Performance Scientific Computing, Hanoi, Vietnam.

- 2009, Mar. 14-16, Workshop on PDE, Yamaguchi-city, Japan.

- 2009, May 11-13, Korea-Australia Analysis Forum, Busan, Korea.

- 2009, June 18-20, 2nd SNU Workshop on Nonlinear Partial Differential Equations, Seoul National Univeristy, Korea.

- 2009, July 6-10, 1st PRIMA Congress, Univ. of New South Wales, Sydney, Australia.

- 2009, Sept. 24-27, Annual meeting of Mathematical Society of Japan, Osaka, Japan.

- 2009, Nov. 5-7, Conference on Elliptic and Parabolic PDEs, Daejeon, Korea.

- 2008, Feb. 11-13, Minicourses on Biomedical Imaging, Institute of Henri Poincare.

- 2008, March 19-21, Minicourse on Inverse Problems, National Taiwan University.

- 2008, May 26-28, Workshop on Mathematical and Computational Challenges in PDE Eigenvalue Problems, Beijing.

- 2008, May 29-31, The 9th International Workshop on Differential Equations, Chonnam National University, Kwanju, Korea.

- 2008, June 12-13, Intensive Lecture Program and International Conference on Nonlinear PDE and Applications, Busan National Univ.

- 2008, June 30-July 4, ECMI 2008, London.

- 2008, July 28-Aug.1, The 16th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications, Geongju, Korea.

- 2008, Aug. 4-7, SIAM Life Science Conference, Hyatt Regency in Montreal, Canada.

- 2008, Oct. 8-10, Variational methods for elliptic PDE's and Hamiltonian systems, POSTEC, Korea.

- 2008, Oct. 9-12, International conference on inverse problems and its applications, Fudan University, Sanghai, China.

- 2008, Dec. 8-10, Workshop on Partial Differential Equations and Fluid Mechanics, Sungkyunkwan Univ. Korea.

- 2007, Dec. 7 - 11, Fourth Pacific Rim Conference on Mathematics, City University of Hong Kong.

- 2007, June 7 - 9, SNU Workshop on Nonlinear PDE, Seoul National University.

- 2007, May 31 - June 2, The 2nd Workshop on Nonlinear PDE, Seoul National University.

- 2007, May 28 - 31, International Conference on PDE and Applications, Beijing Normal University.

- 2007, Feb. 13 - 14, The 4th RIMS-SNU Joint Symposium, Seoul National University.

- 2007, Feb. 10 - 12, Mathematical Analysis Seminar, Tsukuba University, Japan.

- 2006, Aug. 19 - 24, Inverse Problems and Applications, Banff, Canada.

- 2006, Jan. 21 - 22, Joint Workshop between RIMS and Seoul National Univ.

- 2005, Sept. 8 - 10, Fabes Lectures, Trieste, Italy.

- 2005, Mar. 6 - 8, Mathematical Analysis Seminar, Tsukuba Univ., Japan

- 2005, Jan. 31 - Feb. 3, The Fifth East Asia PDE Conference, Osaka Univ.

Publications

Books

[1] H. Ammari and H. Kang, Reconstruction of small inhomogeneities from boundary measurements, Lecture Notes in Math. 1846, Springer-Verlag, 2004.

[2] H. Ammari and H. Kang (Eds), Inverse problems, multi-scale analysis, and effective medium theory, Contemporary Math., 408, Amer. Math. Soc., 2006.

[3] H. Ammari and H. Kang, Polarization and Moment Tensors with Applications to Inverse Problems and Effective Medium Theory, Applied Mathematical Sciences Series, Vol 162, Springer-Verlag, 2007.

[4] H. Ammari, H. Kang, and H. Lee, Layer potential techniques in spectral analysis, Mathematical Surveys and Monographs series 153, Amer. Math. Soc., 2009.

[5] H. Ammari and H. Kang (Eds), Imaging microstructures: Mathematical and computational challenges, Contemporary Math., 494, Amer. Math. Soc., 2009.

[6] H. Ammari and H. Kang, Expansion Methods. Chapter 9 (55 pages), *Handbook of Mathematical Methods in Imaging*, Springer, New York, 2011.

[7] H. Ammari, J. Garnier, H. Kang and K. Solna (Eds), Mathematical and statistical methods for imaging, Contemporary Math., 548, Amer. Math. Soc., 2011. ISBN 978-0-8218-5289-7.

[8] H. Ammari, Y. Capdeboscq and H. Kang (Eds), Multi-scale and high-contrast PDE: from modelling, to mathematical analysis, to inversion, Contemporary Math. 577, Amer. Math. Soc., 2012.

[9] H. Ammri, J. Garnier, W. Jing, H. Kang, M. Lim, K. Solna, and H. Wang, Mathematical and statistical methods for multistatic imaging, Lecture Notes in Math. 2098, Springer, 2013.

[10] H. Kang, Layer potential approaches to interface problems, a chapter in *Inverse problems and imaging, Panoramas et Syntheses*, Societe Mathematique de France, 2014.

[11] H. Ammari, E. Bretin, J. Garnier, H. Kang, H. Lee, and A. Wahab, Mathematical methods in elasticity imaging, Princeton Series in Applied Mathematics, Princeton Univ. Press, Princeton, 2015.

[12] H. Ammari, J. Garnier, H. Kang, L.H. Nguyen, and L. Seppecher, Multi-wave medical imaging, World Scientific, London, 2017.

[13] H. Ammari, B. Fitzpatrick, H. Kang, M. Ruiz, S. Yu, and H. Zhang, Mathematical and Computational Methods in Photonics and Phononics, Mathematical Surveys and Monographs 235, Amer. Math. Soc., Providence, 2019.

Journal Papers (submitted, in press, and published)

Submitted

[1] S. Fukushima, H. Kang and Y. Miyanishi, Decay rate of the eigenvalues of the Neumann-Poincaré operator, arXiv:2304.04772.

[2] S. Fukushima, Y.-G. Ji, and H. Kang, A decomposition theorem of surface vector fields and spectral structure of the Neumann-Poincaré operator in elasticity, arXiv:2211.15879.

in Press

[1] H. Kang, Quantitative analysis of field concentration in presence of closely located inclusions of high contrast, Proceedings ICM 2022.

[2] H. Ammari, H. Kang, D.W. Kim and S. Yu, Quantitative estimates for stress concentration of the Stokes flow between adjacent circular cylinders, SIAM J. Math. Anal, to appear, arXiv:2003.06578

2023

[1] H. Kang and S. Sakaguchi, A symmetry theorem in two-phase heat conductors, Mathematics in Engineering, 5(3) (2023), 1–7. doi: 10.3934/mine.2023061

[2] Y. Ji and H. Kang, Spectrum of the Neumann-Poincaré operator and optimal estimates for transmission problems in presence of two circular inclusions, Int. Math. Res. Notices (2022), https://doi.org/10.1093/imrn/rnac057

[3] K. Ando, H. Kang and Y. Miyanishi, Spectral structure of the Neumann–Poincaré operator on thin domains in two dimensions, J. d'Anal. Math. (2022), https://doi.org/10.1007/s11854-022-0206-7

[4] Y. Ji and H. Kang, Spectral properties of the Neumann-Poincaré operator on rotationally symmetric domains in two dimensions, Math. Ann (2022), https://doi.org/10.1007/s00208-022-02482-w

2022

[1] H. Kang, X. Li, and S. Sakaguchi, Existence of weakly neutral coated inclusions of general shape in two dimensions, Appl. Anal., 101(4) (2022), 1330-1353.

[2] H. Kang, Spectral Geometry and Analysis of the Neumann-Poincaré Operator, a Review. In: Kang, NG., Choe, J., Choi, K., Kim, Sh. (eds) Recent Progress in Mathematics. KIAS Springer Series in Mathematics, vol 1. Springer, Singapore. https://doi.org/10.1007/978-981-19-3708-8_4

[3] K. Ando, H. Kang, S. Lee and Y. Miyanishi, Spectral structure of the Neumann–Poincaré operator on thin ellipsoids and flat domains, SIAM J. Math. Anal, 54(60 (2022), 6164–6185.

2021

[1] H. Kang and S. Yu, Singular functions and characterizations of field concentrations: a survey, Anal. Theory Appl. 37 (2021), 102–113.

[2] Y. Ji, H. Kang, X. Li, and S. Sakaguchi, Neutral inclusions, weakly neutral inclusions, and an over-determined problem for confocal ellipsoids, *Geometric Properties for Parabolic and Elliptic PDE's*, Springer INdAM series vol 47, 151–181 (a chapter), 2021

[3] K. Ando, H. Kang, Y. Miyanishi and T. Nakazawa, Surface localization of plasmons in three dimensions and convexity, SIAM J. Appl. Math, 81-3 (2021), 1020–1033.

[4] H. Kang, X. Li, and S. Sakaguchi, Weakly neutral inclusions of general shape II: Existence for small perturbations of balls, Asymptotic Analysis, 125 (2021), 101–132.

[5] H. Kang and S. Sakaguchi, Large time behavior of temperature in two-phase heat conductors, Jour. Diff. Equ. 303 (2021), 268–276.

[6] K. Ando, H. Kang, Y. Miyanishi and M. Putinar, Spectral analysis of Neumann-Poincaré operator, Rev. Roumaine Math. Pures Appl. 66 (2021), 545–575.

2020

[1] H. Kang and S. Yu, A proof of the Flaherty-Keller formula on the effective property of densely packed elastic composites, Cal. Vari. PDE 59 (2020), 22.

[2] H. Kang and K. Yun, Quantitative estimates for enhancement of the field excited by an emitter due to presence of two closely located spherical inclusions, Jour. Diff. Equ. 269 (2020), 2977–3002.

[3] K. Ando, H. Kang and Y. Miyanishi, Convergence rate for eigenvalues of the elastic Neumann–Poincaré operator on smooth and real analytic boundaries in two dimensions, Jour Math Pures Appl. 140 (2020), 211–229.

2019

[1] H. Kang and K. Yun, Optimal estimates of the field enhancement in presence of a bow-tie structure of perfectly conducting inclusions in two dimensions, Jour. Diff. Equ. 266 (2019), 5064–5094.

[2] H. Kang and S. Yu, Quantitative characterization of stress concentration in the presence of closely spaced hard inclusions in two-dimensional linear elasticity, Arch. Rati. Mech. Anal. 232 (2019), 121–196.

[3] H. Kang and X. Li, Construction of weakly neutral inclusions of general shape by imperfect interfaces, SIAM J. Appl. Math. 79 (2019), 396–414.

[4] K. Ando, H. Kang, Y. Miyanishi and E. Ushikoshi, The first Hadamard variation of Neumann–Poincaré eigenvalues on the sphere, Proc. Amer. Math. Soc. 147 (2019), 1073–1080.

[5] K. Ando, H. Kang and Y. Miyanishi, Elastic Neumann–Poincaré operators on three dimensional smooth domains: Polynomial compactness and spectral structure, Int. Math. Res. Notices 2019 (12) (2019), 3883–3900.

[6] H. Kang and K. Yun, Precise estimates of the field excited by an emitter in presence of closely located inclusions of a bow-tie shape, Jour Math Anal Appl 479 (2) (2019), 1670–1707.

[7] H. Kang and K. Yun, Quantitative estimates of the field excited by an emitter in a narrow region between two circular inclusions, Q Appl Math LXXVII (4) (2019), 861–873.

[8] K. Ando, Y.-G. Ji, H. Kang, D. Kawagoe and Y. Miyanishi, Spectral structure of the Neumann–Poincaré operator on tori, Ann. I. H. Poincare-AN 36 (2019), 1817–1828.

[9] Y.-G. Ji and H. Kang, A concavity condition for existence of a negative value in Neumann-Poincaré spectrum in three dimensions, Proc. Amer. Math. Soc 147 (2019), 3431–3438

2018

[1] K. Ando, H. Kang and Y. Miyanishi, Spectral Structure of Elastic Neumann–Poincaré Operators, Journal of Physics, Conference Series 965 (2018), 012027.

[2] K. Ando, Y. Ji, H. Kang, K. Kim and S. Yu, Spectral properties of the Neumann-Poincaré operator and cloaking by anomalous localized resonance for the elasto-static system, Euro. J. Appl. Math 29 (2018), 189–225.

[3] H. Kang and M. Putinar, Spectral permanence in a space with two norms, Rev. Mat. Iberoam. 34 (2018), 621–635.

[4] K. Ando, H. Kang and Y. Miyanishi, Exponential decay estimates of the eigenvalues for the Neumann-Poincaré operator on analytic boundaries in two dimensions, J. Integr. Equ. Appl. 30 (2019), 473–489.

2017

[1] J. Helsing, H. Kang and M. Lim, Classification of spectra of the Neumann–Poincaré operator on planar domains with corners by resonance, Ann. I. H. Poincare-AN 34 (2017), 991–1011.

[2] T. Feng, H. Kang and H. Lee, Construction of GPT-vanishing structures using shape derivative, J. Comp. Math. 35 (2017), 569–585.

[3] H. Kang, M. Lim and S. Yu, Spectral resolution of the Neumann-Poincaré operator on intersecting disks and analysis of plasmon resonance, Arch. Rati. Mech. Anal. 226 (2017), 83–115.

[4] K. Ando, H. Kang, K. Kim and S. Yu, Spectrum of Neumann-Poincaré operator on annuli and cloaking by anomalous localized resonance for linear elasticity, SIAM J. Math. Anal. 49 (2017), 4232–4250.

2016

[1] K. Ando and H. Kang, Analysis of plasmon resonance on smooth domains using spectral properties of the Neumann-Poincare operator, J,. Math. Anal. Appl. 435 (2016), 162–178.

[2] H. Kang, K. Kim, H. Lee, J. Shin and S. Yu, Spectral properties of the Neumann-Poincaré operator and uniformity of estimates for the conductivity equation with complex coefficients, J London Math Soc (2) 93 (2016), 519–546.

[3] H. Kang and E. Kim, Estimation of stress in the presence of closely located elastic inclusions: A numerical study, Contemporary Math. 660 (2016), 45–57.

[4] K. Ando, H. Kang and H. Liu, Plasmon resonance with finite frequencies: a validation of the quasi-static approximation for diametrically small inclusions, SIAM J. Appl. Math. 76 (2016), 731–749.

[5] T. Feng and H. Kang, Spectrum of the Neumann-Poincaré operator for ellipsoids and tunability, Integr. Equat. Oper. Th. 84 (2016), 591–599.

[6] J, Eom, H.Kang, G. Nakamura and Y.-C. Wang, Reconstruction of the shear modulus of viscoelastic systems in a thin cylinder: an inversion scheme and experiments, Inverse Problems 32 (2016) 095007 (19pp).

[7] H. Kang, H. Lee and S. Sakaguchi, An over-determined boundary value problem arising from neutrally coated inclusions in three dimensions, Ann. Sc. Norm. Super. Pisa Cl. Sci. (5) XVI (2016), 1193-1208.

[8] H. Kang, On coated inclusions neutral to bulk strain fields in two dimensions, Rend. Istit. Mat. Univ. Trieste 48 (2016), 353–367.

2015

[1] H. Ammari, D. Chung, H. Kang, and H. Wang, Invariance Properties of Generalized Polarization Tensors and Design of Shape Descriptors in Three Dimensions, Appl. Comput. Harmon. A., 38 (2015), 140–147.

[2] H. Kang, H. Lee and M. Lim, Construction of conformal mappings by generalized polarization tensors, Math. Method Appl. Sci., 38 (2015), 1847-1854.

[3] O.K. Lee, H. Kang, J.C. Ye and M. Lim, A non-iterative method for the electrical impedance tomography based on joint sparse recovery, Inverse Problems 31 (2015), 075002.

[4] H. Kang, H. Lee and K. Yun, Optimal estimates and asymptotics for the stress concentration between closely located stiff inclusions, Math. Annalen 363 (2015), 1281–1306.

[5] H. Ammari, H. Dong, H. Kang and S. Kim, On an elliptic equation arising from photo-acoustic imaging in inhomogeneous media, Int. Math. Res. Notices (2015), Vol, 2015, 12105–12113.

2014

[1] H. Kang, G.W. Milton and J.-N. Wang, Bounds on the volume fraction of the two-phase shallow shell using one measurement, J. Elasticity 114 (2014), 41–53.

[2] H. Kang, M. Lim and K. Yun, Characterization of the electric field concentration between two adjacent spherical perfect conductors, SIAM J. Appl. Math. 74 (2014), 125–146.

[3] H. Ammari, T. Boulier, J. Garnier, W. Jing, H. Kang and H. Wang, Target Identification Using Dictionary Matching of Generalized Polarization Tensors, Found. Comput. Math. 14 (2014), 27–62.

[4] H. Ammari, J. Garnier, H. Kang, M. Lim, and S. Yu, Generalized Polarization Tensors for Shape Description, Numerische Math. 126 (2014), 199–224.

[5] H. Kang and H. Lee, Coated inclusions of finite conductivity neutral to multiple fields in two dimensional conductivity or anti-plane elasticity, Euro. J. Appl. Math., 25 (3) (2014), 329–338.

[6] H. Ammari, G. Ciraolo, H. Kang, H. Lee and G.W. Milton, Spectral theory of a Neumann-Poincaré-type operator and analysis of anomalous localized resonance II, Contemporary Math. 615, 1–14, 2014.

[7] H. Kang, K. Kim, H. Lee, X. Li and G.W. Milton, Bounds on the size of an inclusion using the translation method for two-dimensional complex conductivity, SIAM J. Appl. Math. 74 (2014), 939–958.

[8] H. Ammari, Y. Deng, H. Kang and H. Lee, Reconstruction of Inhomogeneous Conductivities via Generalized Polarization Tensors, Ann. I. H. Poincare-AN 31 (2014), 877–897.

[9] D. Chung, H. Kang, K. Kim and H. Lee, Cloaking due to anomalous localized resonance in plasmonic structures of confocal ellipses, SIAM J. Appl. Math. 74 (2014), 1691–1707.

2013

[1] H. Kang, M. Lim and K. Yun, Asymptotics and Computation of the Solution to the Conductivity Equation in the Presence of Adjacent Inclusions with Extreme Conductivities, J Math Pures Appl., 99 (2013), 234–249.

[2] H. Ammari, H. Kang, H. Lee, and M. Lim, Enhancement of Near Cloaking Using Generalized Polarization Tensors Vanishing Structures. Part I: The Conductivity Problem, Comm Math. Phys., 317 (2013), 253–266.

[3] H. Ammari, H. Kang, H. Lee, and M. Lim, Enhancement of near-cloaking. Part II: the Helmholtz equation, Comm Math. Phys., 317 (2013), 485–502.

[4] H. Ammari, G. Ciraolo, H. Kang, H. Lee and K. Yun, Spectral analysis of the Neumann-Poincaré operator and characterization of the stress concentration in anti-plane elasticity, Arch. Rati. Mech. Anal., 208 (2013), 275–304.

[5] H. Kang and G.W. Milton, Bounds on the volume fractions of two materials in a three dimensional body from boundary measurements by the translation method, SIAM J. Appli. Math. 73 (2013), 475–492.

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