

Hongpeng Sun

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Education and Work Experience

- Associated Professor (Tenure-track position) 2015-
Institute for Mathematical Science, Renmin University of China, Bei-
jing
- Postdoc 2012- 2014
Institute for Mathematics and Scientific Computing, University of
Graz, Graz, Austria
- PhD in Mathematics 2007- 2012
Academy of Mathematics and Systems Science, CAS, Beijing, China
- B.Sc in Mathematics 2003-2007
University of Science and Technology of China, Hefei, China

Research Interests

- Mathematical Image Processing, Inverse Problems (including inverse scattering and mathematical cloaking)

Publications

1. *Preconditioned Douglas-Rachford splitting methods for convex-concave saddle-point problems*, with Kristian Bredies, SIAM Journal on Numerical Analysis, SIAM J. Numer. Anal., 53(1), 421 - 444. (24 pages). <http://epubs.siam.org/doi/10.1137/140965028>.
2. *Preconditioned Douglas-Rachford algorithms for TV and TGV regularized variational imaging problems*, with Kristian Bredies, Journal of Mathematical Imaging and Vision (JMIV), <http://dx.doi.org/10.1007/s10851-015-0564-1>, Springer US, (28 pages), 2015.
3. *Inverse elastic scattering for multiscale rigid bodies with a single far-field pattern*, with G. Hu, J. Li, H. Y. Liu, SIAM Journal on Imaging Sciences, 2014, 7, 1799-1825.

4. *Enhanced near-cloak by FSH lining*, with H. Y. Liu, Journal de Mathématiques Pures et Appliquées, Volume 99, Issue 1, January 2013, pp. 17–42.
5. *Imaging acoustic obstacles by hypersingular point sources*, with J. Li, H. Y. Liu and J. Zou, Inverse Problems and Imaging (IPI), pp. 545 - 563, Volume 7, Issue 2, May 2013.
6. *Regular scattering patterns from near-cloaking devices and their implications for invisibility cloaking*, with Ilker Kocyigit, Hongyu Liu, Inverse Problems, 29 (2013), 045005.
7. *Two single-shot methods for locating multiple electromagnetic scatterers*, with Jingzhi Li, Hongyu Liu, Zaijiu Shang, SIAM Journal on Applied Mathematics, 73 (2013), pp. 1721–1746.
8. *Damping mechanisms for regularized transformation-acoustics cloaking*, with Jingzhi Li, Hongyu Liu, Contemporary Mathematics, 615(2014), 233-253 (Special issue in honor of Professor Gunther Uhlmann).
9. *On singular perturbation of the reduced wave equation and scattering from a complex scatterer*, with H. Y. Liu, Z. J. Shang and J. Zou, Journal of Dynamics and Differential Equations December 2012, Volume 24, Issue 4, pp. 803-821.
10. *Enhanced approximate cloaking by SH and FSH lining*, with J. Li, H. Y. Liu, 2012 Inverse Problems **28** 075011. **(selected as Insights by the journal)**.
11. *Reconstructing acoustic obstacles by cylindrical waves*, with J. Li, H. Y. Liu and J. Zou, J. Math. Phys. **53**, 103705 (2012), (19 pages). **(selected as Research Highlights by the journal)**.

Preprints

1. *Preconditioned alternating direction method of multipliers for the minimization of quadratic plus non-smooth convex functionals*, SFB-Report-2015-006, with Kristian Bredies. Submitted for publication, 2015. <http://math.uni-graz.at/mobis/publications/SFB-Report-2015-006.pdf>

Recent Conferences and Research Visits

1. ICIAM, 2015, the 8th International Congress on Industrial and Applied Mathematics, August 10-14, 2015, Beijing.

2. Imaging with Modulated/Incomplete Data 2014, 3.-5. July 2014, SFB Workshop, Graz, Austria.
3. SFB 6th Status Seminar, November 13-15, 2013, Schlos Röthelstein, Austria, organizer: Prof. Karl Kunisch.
4. International Conference on Scale Space and Variational Methods in Computer Vision (SSVM) 2013, Schloss Seggau, Graz region, Austria, June 2nd-6th 2013.
5. SFB 5th Status Seminar (November 14-16, 2012, Schlos Röthelstein, Austria), organizer: Prof. Karl Kunisch.

Reviews for Journals and Activity

- SIAM Journal on Scientific Computing
- Journal of Mathematical Imaging and Vision.
- Applicable Analysis.
- International Journal of Computer Mathematics.
- Reviewer for Mathematical Review.

Recent Presentations

- *Preconditioned Alternating Direction Method of Multipliers for Non-Smooth Regularized Problem*, ICIAM, 2015, the 8th International Congress on Industrial and Applied Mathematics, August 10-14, 2015, Beijing.
- *Preconditioned Alternating Direction Method of Multipliers for Non-Smooth Regularized Quadratic Problem*, Imaging with Modulated/Incomplete Data 2014, 3.-5. July 2014, SFB Workshop, Graz, Austria.
- *Preconditioned Douglas-Rachford Splitting Method and with Application to Imaging*, SFB 6th Status Seminar, November 15, 2013, Schlos Röthelstein, Austria.