Publication list of Yen-Hsi Richard Tsai

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IPAM: "Part of this research was performed while the author was visiting the Institute for Pure and Applied Mathematics (IPAM), which is supported by the National Science Foundation (Grant No. DMS-1440415)."

Simons: "This work was partially supported by a grant from the Simons Foundation."

Preprints

1. **Error analysis for the Implicit Boundary Integral Method**
   Y. Zhong, K. Ren, O. Runborg, and R. Tsai. arXiv:2312.07722

2. **Corrected trapezoidal rule-IBIM for linearized Poisson-Boltzmann equation**

3. **Convergence of a class of high order corrected trapezoidal rules**
   F. Izzo, O. Runborg, and R. Tsai. 2022 arXiv:2208.08216

4. **Visibility optimization for surveillance-evasion games**

Under Review

5. **Efficient and robust sensor placement in complex environments**

6. **A Volumetric Approach to Monge's Optimal Transport on Surfaces**

7. **Stabilization of parareal algorithms for long time computation of a class of highly oscillatory Hamiltonian flows using data**

8. **Usable boundary for visibility-based surveillance-evasion games**

Publications in Refereed Journals

9. **Nearest neighbor sampling of point sets using rays**

10. **High order corrected trapezoidal rules for a class of singular integrals**

11. **Side effects of learning from low dimensional manifolds**
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12. **Numerical wave propagation aided by deep learning**
13. Corrected Trapezoidal Rules for Singular Implicit Boundary Integrals  


15. Fast colonic polyp detection using a Hamilton-Jacobi approach to non-dominated sorting  

16. A stable parareal-like method for the second order wave equation  

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19. A multiscale domain decomposition algorithm for boundary value problems for Eikonal equations  

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21. Computer-aided diagnosis of polyps in white light colonoscopy, comparison of three different method  

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28. An implicit boundary integral method for interfaces evolving by Mullins-Sekerka dynamics

29. An extrapolative approach to integration over hypersurfaces in the level set framework
   DOI: https://doi.org/10.1090/mcom/3245

30. Implicit boundary integral methods for the exterior Neumann problems for the Helmholtz equation

31. Parareal methods for highly oscillatory ordinary differential equations

32. Integration over curves and surfaces defined by the closest point mapping

33. A level set approach reflecting sheet structure with single auxiliary function for evolving spirals on crystal surfaces

34. Fast sweeping methods for hyperbolic systems of conservation laws at steady state II

35. An efficient algorithm for a visibility based surveillance-evasion game

36. Automated polyp detection in colon capsule endoscopy

37. Iterated averaging of three-scale oscillatory systems

38. Heat Source Identification Based on L1 Constrained Minimization

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41. An implicit interface boundary integral method for Poisson’s equation on arbitrary domains

42. Heterogeneous Multiscale Methods for ODEs

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44. A multiscale method for highly oscillatory dynamical systems using a Poincaré map type technique

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49. Automatic Polyp Detection in Pillcam Colon 2 Capsule Images and Videos: Preliminary feasibility Report

50. Discovery of point sources in the Helmholtz equation posed in unknown domains with obstacles

51. Gaussian Beam Decomposition of High Frequency Wave Fields Using Expectation-Maximization

52. Numerical methods for smooth and crystalline mean curvature flow

53. A level set method for the Schrodinger equation with discontinuous potentials

54. Diffusion generated motion using signed distance functions

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64. Multi-valued solution and level set methods in computational high frequency wave propagation

65. Visibility Optimizations using Variational Approaches

66. Computing Multi-Valued Physical Observables for the High Frequency Limit of Symmetric Hyperbolic Systems

67. Total Variation and Level Set based Methods in Image Science

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69. Computing Multivalued Physical Observables for Semiclassical Limit of the Schrödinger Equation

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71. Fast Sweeping Algorithms for Hamilton-Jacobi Equations

72. Visibility and its Dynamics in a PDE Based Implicit Framework

73. Level Set Methods and Their Applications in Image Science

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75. Reflection in a Phase Space Based Level Set Framework

76. Fast Sweeping Methods for a Class of Hamilton-Jacobi Equations

77. A Level Sets Approach for Computing Discontinuous Solutions of Hamilton-Jacobi Equations
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93. Discovering a point source in unknown environments  

94. Multiscale computations for highly oscillatory problems  

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105. Autonomous Source Discovery and Navigation in Complicated Environments  
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107. A Numerical Study of Anisotropic Crystal Growth with Bunching under Very Singular
     Vertical Diffusion

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