Paul G. Beckman

Updated September 3, 2025

CV

Education

PhD in Mathematics — *Courant Institute, New York University* — **2020-2025**
Advisor: Michael O'Neil
Thesis: Fast transform methods for Gaussian random fields

BS in Computational and Applied Mathematics — *University of Chicago* — **2015-2019**
Advisor: Mihai Anitescu
Thesis: Nonstationary Gaussian process approximations of piecewise analytic computer codes

Research

Peter O'Donnell Jr. Postdoctoral Fellow — *Oden Institute, UT Austin* — **2025-present**
Advisors: Per-Gunnar Martinsson, Joe Kileel

CSGF Practicum — *Lawrence Berkeley National Laboratory* — **2023**
Advisors: Xiaoye Sherry Li, Yang Liu

Predoctoral Researcher — *Argonne National Laboratory* — **2019-2020**
Advisor: Mihai Anitescu

Publications

Christopher J. Geoga, **Beckman, Paul G.**. "Nonparametric spectral density estimation from irregularly sampled data." arXiv preprint arXiv: 2503.00492 (2025).

Beckman, Paul G., Michael O'Neil. "A Nonuniform Fast Hankel Transform." arXiv preprint arXiv: 2411.03029 (2024).

Beckman, Paul G., Christopher J. Geoga. "Fast Adaptive Fourier Integration for Spectral Densities of Gaussian Processes." *Statistics and Computing* 34, no. 6 (2024): 217.

Beckman, Paul G., Christopher J. Geoga, Michael L. Stein, and Mihai Anitescu. "Scalable Computations for Nonstationary Gaussian Processes." *Statistics and Computing* 33, no. 4 (2023): 84.

Williams–Young, David B., **Paul G. Beckman**, and Chao Yang. "A Shift Selection Strategy for Parallel Shift-Invert Spectrum Slicing in Symmetric Self-Consistent Eigenvalue Computation." *ACM Transactions on Mathematical Software (TOMS)* 46, no. 4 (2020): 1-31.

Awards

Moses A. Greenfield Research Prize — *Courant Institute* — **2024**

Computational Science Graduate Fellowship — *Department of Energy* — **2020**

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Presentations

SIAM *Computational Science and Engineering (Minisymposium co-organizer)* **2025**
Talk: "Fast adaptive Fourier integration of spectral densities"

Princeton University *PACM IDeAS Seminar* **2025**
Talk: "A nonuniform fast Hankel transform"

SIAM *Uncertainty Quantification* **2024**
Talk: "Fast adaptive Fourier integration of spectral densities"
Poster: "Butterfly-accelerated Gaussian random fields on manifolds"

ICIAM *International Congress on Industrial and Applied Mathematics* **2023**
Talk: "Boundary integral methods for computing covariances in inverse source problems"

SIAM *Mathematics of Data Science (Minisymposium co-organizer)* **2022**
Talk: "Fast algorithms for elliptic PDEs with Gaussian boundary noise"

Teaching

Mathematic Statistics *Teaching Assistant* **Spring 2024**
New York University MATH-UA.2340

Statistics *Teaching Assistant* **Fall 2021**
New York University MATH-GA.2962

Computational Statistics *Teaching Assistant* **Spring 2021**
New York University MATH-GA.2080

Software

Primary developer `FastHankelTransform.jl`, `SpectralKernels.jl`

Contributor `FastGaussQuadrature.jl`, `chunkIE`

Outreach and Service

Petey Greene Program *Volunteer Tutor* **2020-2025**
Math and science instructor and tutor for currently and formerly incarcerated students

Courant Institute *DEI Reading Group* **2020-2024**
Co-founded a department group reading articles on progress towards more accessible math higher education

Courant Institute *Department Climate Survey* **2020-2022**
Co-designed, administered, and reviewed a survey on Courant Institute PhD student experience

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