Curriculum Vitae

PINAKI BHATTACHARYYA

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PROFESSIONAL SUMMARY

- Doctoral Research in the field of Polymer Physics and Stochastic Processes with a number of publications in internationally peer reviewed journals.
- Exceptional mathematics skills and proficiency with computer programs.
- Highly organized, skilled in continuous improvement, agile and adaptive to changing environments.
- Efficient in time management and capable of multitasking.
- Keen interest in developing and analyzing new financial instruments and derivative products for emerging markets.

SKILLS

- Probability, Statistics and Distribution Theory.
- Numerical Solution of Partial Differential Equations, Finite Element and Finite Difference Methods.
- Stochastic Differential Equations, Brownian Motion and Stochastic Processes, Fractional Brownian motion, Fractional Gaussian Noise, Colored Noise, Ornstein–Uhlenbeck process, Long memory heavy (fat) tailed processes like Lévy Processes, Analysis of tail index and Hurst exponent.
- Stochastic Calculus, Wiener Measure and Path Integrals.
- First Passage Processes, Barrier Options and Path Dependent Options.
- Stochastic Volatility and Interest Rate Models (one factor, multi-factor) e.g. Heath-Jarrow-Morton, Vasicek, Heston, Hull-White, Cox-Ingersoll-Ross, Black-Scholes-Merton etc.
- Markowitz Portfolio Optimization, ARCH and GARCH Models, Time Series Analysis and Forecasting Models e.g. ARMA, ARIMA.
- Sharpe Ratio, VaR and CVaR.
- Knowledge of CAPM, Binomial Asset Pricing Model, Greeks, volatility smile, Kolmogorov-

Smirnov test, Hill estimator, Principal Component Analysis.
- Monte Carlo and Markov Chain Monte Carlo Simulation.
- Working knowledge of Python Programming language, MATLAB and Mathematica.
- Familiarity and working experience with Quantopian and Quandl platforms.
- Data analysis and Report writing.
- High-Impact Presentations.

EDUCATION

Ph.D. : Theoretical Polymer Dynamics, 2018.

Indian Institute of Science - Bengaluru, Karnataka.

Thesis Title: Theoretical Studies of Polymer Dynamics in Confined Spaces

- Continuing studies in Stochastic Interest Rate, Options and Derivative models.
- Professional development courses completed:
  - Python for Financial Analysis and Algorithmic Trading (Udemy).
  - Financial Engineering and Risk Management (Coursera).
- Recipient of UGC-CSIR NET Scholarship.
- Qualified GATE 2010 in Chemistry.

Master of Science: Physical Chemistry, 2010 (First Class).

Banaras Hindu University, Varanasi, UP.

Bachelor of Science: Physical Chemistry, 2010 (First Class).

Banaras Hindu University, Varanasi, UP.

PUBLICATIONS

- Confinement and viscoelastic effects on chain closure dynamics, Pinaki Bhattacharyya, Rati Sharma, and Binny J. Cherayil**, J. Chem. Phys. 136**, 234903 (2012).
- Chain extension of a confined polymer in steady shear flow, Pinaki Bhattacharyya and Binny J. Cherayil, **J. Chem. Phys. 37**, 194906 (2012).
- The diffusion and relaxation of Gaussian chains in narrow rectangular slits, Pinaki Bhattacharyya and Binny J. Cherayil**, J. Chem. Phys. 138**, 244904 (2013).
- Dynamics of the reaction between the free end of a tethered self-avoiding polymer and a flat penetrable surface: A renormalization group study, Binny J. Cherayil and Pinaki Bhattacharyya**, J. Chem. Phys. 140**, 234902 (2014).