

Dr. Prince Romeo Mensah |

Personal Details

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Employment

Postdoc at Technische Universität Clausthal, Germany	<i>10.2022–Current</i>
Postdoc at Imperial College London, UK	<i>10.2020–10.2022</i>
Postdoc at Gran Sasso Science Institute, Italy	<i>01.2019–09.2020</i>
Teaching Assistant (full-time) at University of Ghana, Ghana	<i>08.2010–05.2012</i>

Qualifications

PhD in Mathematics (Successful defence 10.2018, Graduation 06.2019) Heriot-Watt University, Scotland-UK. Thesis: 'Singular limits of stochastic compressible flows.' (shortened title)	<i>09.2015–06.2019</i>
MSc in Mathematics Rheinische Friedrich-Wilhelms-Universität Bonn, Germany. Thesis: 'Ordinary Differential Equations Arising in Coating Flow Problems.'	<i>10.2013–09.2015</i>
MSc in Mathematical Sciences African Institute for Mathematical Science-AIMS, Ghana. Thesis: 'Image Encryption and Decryption.'	<i>08.2012–07.2013</i>
BA in Mathematics with Economics University of Ghana. Thesis: 'Spectral Theorem of Linear Operators in Hilbert Spaces.'	<i>08.2006–07.2010</i>

Extra Qualifications

MSc in Mathematical Sciences University of Cape Coast. Ghana. Joint degree awarded on completion of Masters study at AIMS-Ghana.	<i>09.2013</i>
Cryptography I Stanford University through COURSERA INC. Online Course Statement of Accomplishment.	<i>01.2013</i>

Professional Associations

Edinburgh Mathematical Society (EMS)	<i>2015–now</i>
Istituto Nazionale di Alta Matematica "Francesco Severi" (INdAM) - [GNAMPA]	<i>2020–now</i>

Teaching

Vertiefung Analysis I – TU Clausthal, Germany	<i>10.2022–02.2023</i>
Analysis und Lineare Algebra II – TU Clausthal, Germany	<i>04.2023–08.2023</i>
Analysis und Lineare Algebra I – TU Clausthal, Germany	<i>10.2022–02.2023</i>

Invited Talks

Title: 'Spatial analyticity of the stochastic Navier Stokes equation.' at Northwestern Polytechnical University, Xi'an Event: International Conference on Nonlinear Analysis and Nonlinear PDEs	08.2022
Title: 'The thermal quasi-geostrophic equations.' at Imperial College London Event: 2nd Stochastic Transport in Upper Ocean Dynamics Annual Workshop	09.2021
Title: 'Polymeric fluid analysis.' at Maxwell Institute, Edinburgh Event: Virtual Maxwell Analysis seminar	05.2020
Title: 'Singular limits of the compressible Navier-Stokes system with random forces.' at Gran Sasso Science Institute (GSSI), L'Aquila Event: Russian seminar series	11.2019
Title: 'Scale interactions in stochastic fluid models.' at Centre International de Rencontres Mathématiques (CIRM), Luminy Event: Stochastic Partial Differential Equations	05.2018
Title: 'Scale interactions in stochastic fluid models.' at Universität Bielefeld Event: Stochastic analysis seminar	04.2018
Title: 'The Incompressible limit of the Compressible Navier-Stokes equation.' at Heriot-Watt University, Edinburgh Event: Evolution equations and friends	10.2017
Title: 'Stochastic compressible fluids and some of its scaling limits.' at International Center for Mathematical Sciences (ICMS), Edinburgh Event: MIGSAA multiscale problems in nonlinear PDEs	09.2017
Title: 'Stochastic compressible fluids and some of its scaling limits.' at International Center for Mathematical Sciences (ICMS), Edinburgh Event: 2017 Joint center of doctoral training (CDT) colloquium	04.2017

Other Talks

Polymeric fluid-structure interaction – TU Clausthal.	11.2023
Spatial analyticity and exponential decay of Fourier modes for the SNS equation – TU Clausthal.	11.2022
Analysis of polymer fluids – AIMS Ghana.	12.2021
Singular limit for fluids – University of Ghana.	12.2021
Comparing fluid models using singular limits – Imperial College London.	12.2020
Scale interactions in stochastic fluid models – Heriot-Watt university.	03.2018
Maxwell Inst. PhD talk 'Singular limits of stochastic compressible flows' – University of Edinburgh.	04.2017
Weak-type $(1, 1)$ bounds for oscillatory singular integrals with rational phases – Universität Bonn.	05.2014
Basics of BV functions – Universität Bonn .	05.2014
Graduate seminar on probability theory: 'Self-avoiding walks' – Universität Bonn.	04.2014
Graduate seminar on PDEs: 'Boltzmann equation' – Universität Bonn.	04.2014
The Borromean rings – AIMS Ghana.	01.2012
The RSA scheme and cryptology simplified – University of Ghana.	04.2011
Spectral theorem of linear operators on Hilbert spaces – University of Ghana.	07.2010

Conferences & Workshops

The SPDEvent 2023 – Bielefeld-Germany.	07.2023
International Conference on Nonlinear Analysis and Nonlinear PDEs – Xi'an-China.	08.2022

Durham Days of Analysis and PDEs - 2nd Edition – Durham-UK.	07.2022
First Annual Black Researchers of Imperial Symposium – London-UK.	06.2022
SITE conference: Long Time Behavior and Singularity Formation in PDEs V – Abu Dhabi-UAE.	05.2022
Convex Intergration and Nonlinear Partial Differential Equations – ICMS, Edinburgh-UK.	11.2021
Black heroes of mathematics (virtual event) – ICMS, Edinburgh-UK.	10.2021
2nd Stochastic Transport in Upper Ocean Dynamics Annual Workshop – London-UK.	09.2021
MPE Wednesday Series: STUOD & MPE CDT (virtual event) – London-UK.	12.2020
Black heroes of mathematics (virtual event) – ICMS, Edinburgh-UK.	10.2020
Winter School: Turbulence in fluids and PDEs – Lausanne-Switzerland.	01.2020
Modeling and analysis of evolutionary problems in materials science – Bonn-Germany.	09.2019
PDEs in Fluid Mechanics – Cantabria-Spain.	09.2019
Paths between Probability, PDEs, and Physics – London-UK.	07.2019
Workshop on fluid-structure interaction – Milano-Italy.	03.2019
Maxwell Institute Seminar with Stefania Lisai and Beatrice Pelloni – ICMS, Edinburgh-UK.	09.2018
Nonlinear analysis and the physical and biological sciences – ICMS, Edinburgh-UK.	05.2018
Stochastic Partial Differential Equations – CIRM, Luminy-France.	05.2018
A MIGSAA short course: Introduction to Regularity Structures – JCMB, Edinburgh-UK.	05.2018
A MIGSAA short course in Nonlinear Analysis by John Ball – ICMS, Edinburgh-UK.	04.2018
Mathematical analysis of incompressible fluid flows – Brighton-UK.	09.2017
MIGSAA multiscale problems in nonlinear PDEs – ICMS, Edinburgh-UK.	09.2017
Equadiff 2017 – Bratislava-Slovakia.	07.2017
Harmonic analysis and its interactions (in honour of Tony Carbery) – Edinburgh-UK.	07.2017
School in analysis and PDE – Warwick-UK.	06.2017
Probabilistic perspectives in nonlinear PDEs – ICMS, Edinburgh-UK.	06.2017
Joint CDT colloquium – ICMS, Edinburgh-UK.	04.2017
SPDE and related fields (in honor of Michael Röckner) – Bielefeld-Germany.	10.2016
MIGSAA fluid mechanics summer school – ICMS, Edinburgh-UK.	09.2016
CIME-EMS Summer school in applied mathematics: Singular random dynamics – Cetraro-Italy.	08.2016
Graduate course : stochastic pathwise integration and stochastic particle systems – Edinburgh-UK.	04.2016
Maxwell mini-symposium on analysis and its applications – ICMS, Edinburgh-UK.	04.2016
Carleson theorems and Radon type behaviour – Universität Bonn-Germany.	05.2014

Funding & Awards

Research Associate of Stochastic Transport in Upper Ocean Dynamics	2020–2022
Gran Sasso Science Institute Postdoctoral fellowship	2019–2020
James Watt Scholarship.	2015–2018
BIGS Two-Years Qualifying Scholarship.	2013–2015
CWRU Graduate Fellowship & Assistantship (declined).	2013–2014
AIMS Bursary.	2012–2013
NCR Excellence Award for the Best Graduating Student in Mathematics.	2010–2011

Grants

Travel and accommodation grant (Hausdorff Institute).	09.2019
Travel, accommodation and subsistence grant (Imperial college).	07.2019
Accommodation and subsistence grant (University of Sussex).	09.2017

Accommodation grant (University of Warwick).

06.2017

Accommodation and subsistence EMS grant (Fondazione CIME).

08.2016

Peer Reviews

Advances in Continuous and Discrete Models (ACDM)

Mathematical Reviews (MathSciNet)

Stochastics and Partial Differential Equations: Analysis and Computations (SPDE)

Zeitschrift für angewandte Mathematik und Physik (ZAMP)

Zentralblatt MATH (zbMATH)

References

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Publications

Preprints

- 17.** Weak and strong solutions for polymeric fluid-structure interaction of Oldroyd-B type .
Prince Romeo Mensah : *Submitted* [29 pages] (2023).
<https://arxiv.org/abs/2311.09034>.
- 16.** Existence of a local strong solution to the beam-polymeric fluid interaction system.
Dominic Breit & Prince Romeo Mensah : *Submitted* [45 pages] (2023).
<https://arxiv.org/abs/2308.04809>.
- 15.** Ladyzhenskaya-Prodi-Serrin condition for fluid-structure interaction systems.
Dominic Breit & Prince Romeo Mensah & Sebastian Schwarzacher & Pei Su : *Submitted* [42 pages] (2023).
<https://arxiv.org/abs/2307.12273>.
- 14.** Spatial analyticity and exponential decay of Fourier modes for the stochastic Navier-Stokes equation.
Dan Crisan & Prince Romeo Mensah : *Submitted* [21 pages] (2022).
<https://arxiv.org/abs/2209.14862>.

Peer reviewed

- 13.** Martingale solutions in stochastic fluid-structure interaction.
Dominic Breit & Prince Romeo Mensah & Thamsanqa Castern Moyo : *Journal of Nonlinear Science (to appear)* [30 pages] (2023).
<https://arxiv.org/abs/2310.08519>.
- 12.** Theoretical analysis and numerical approximation for the stochastic thermal quasi-geostrophic model.
Dan Crisan & Darryl D. Holm & Oana Lang & Prince Romeo Mensah & Wei Pan : *Stochastics and Dynamics* [38 pages] (2023).
<https://doi.org/10.1142/S0219493723500399>;
<https://arxiv.org/abs/2207.07457>.
- 11.** Theoretical and computational analysis of the thermal quasi-geostrophic model.
Dan Crisan & Darryl D. Holm & Erwin Luesink & Prince Romeo Mensah & Wei Pan : *Journal of Nonlinear Science* [59 pages] (2021).
<https://link.springer.com/article/10.1007/s00332-023-09943-9>;
<https://arxiv.org/abs/2106.14850>.
- 10.** Local well-posedness of the compressible FENE dumbbell model of Warner type.
Dominic Breit & Prince Romeo Mensah : *Nonlinearity* [35 pages] (2021).
<https://iopscience.iop.org/article/10.1088/1361-6544/abbd82>;
<https://arxiv.org/abs/1911.02465>.
- 9.** An incompressible polymer fluid interacting with a Koiter shell.
Dominic Breit & Prince Romeo Mensah : *Journal of Nonlinear Science* [56 pages] (2021).
<https://link.springer.com/article/10.1007/s00332-021-09678-5>;
<https://arxiv.org/abs/2009.14160>.
- 8.** The combined incompressible quasineutral limit of the stochastic Navier-Stokes-Poisson system.
Donatella Donatelli & Prince Romeo Mensah : *SIAM Journal on Mathematical Analysis* [31 pages] (2020).
<https://epubs.siam.org/doi/10.1137/20M1338915>;
<https://arxiv.org/abs/2005.08825>.
- 7.** Dissipative martingale solutions of the stochastically forced Navier-Stokes-Poisson system on domains without boundaries.
Donatella Donatelli & Pierangelo Marcati & Prince Romeo Mensah : *Nonlinear Analysis: Real World Applications* 57, 103201 [52 pages] (2020).
<https://doi.org/10.1016/j.nonrwa.2020.103201>;
<https://arxiv.org/abs/2005.00291>.
- 6.** A multi-scale limit of a randomly forced rotating 3-D compressible fluid.
Prince Romeo Mensah : *Journal of Mathematical Fluid Mechanics* [33 pages] (2020).

<https://doi.org/10.1007/s00021-020-00496-5>;

<https://arxiv.org/abs/1801.09649>.

5. Space-time approximation of parabolic systems with variable growth.

Dominic Breit & Prince Romeo Mensah : *IMA Journal of Numerical Analysis* [48 pages] (2020).

<https://doi.org/10.1093/imanum/drz039>;

<https://arxiv.org/abs/1804.06097>.

4. Stochastic compressible Euler equations and inviscid limits.

Dominic Breit & Prince Romeo Mensah : *Nonlinear Analysis* 184, 218-238 [21 pages] (2019).

<http://doi.org/10.1016/j.na.2019.02.013>;

<https://arxiv.org/abs/1802.07186>.

3. Existence of martingale solutions and the incompressible limit for stochastic compressible flows on the whole space.

Prince Romeo Mensah : *Annali di Matematica Pura ed Applicata (1923 -)* 196, 2105-2133 [29 pages] (2017).

<http://dx.doi.org/10.1007/s10231-017-0656-1>;

<https://arxiv.org/abs/1612.03344>.

Proceedings.....

2. Blow-up of strong solutions of the Thermal Quasi-Geostrophic equation.

Dan Crisan & Prince Romeo Mensah : *Stochastic Transport in Upper Ocean Dynamics* [14 pages] (2022).

https://doi.org/10.1007/978-3-031-18988-3_1;

<https://arxiv.org/abs/2201.06476>.

Theses.....

1. The stochastic compressible Navier-Stokes system on the whole space and some singular limits.

Prince Romeo Mensah : *Heriot-Watt University* [260 pages] (2019).

<https://www.ros.hw.ac.uk/handle/10399/4210>.