



Reinier van Buel

Curriculum Vitæ

<i>Place of Birth</i>	Eindhoven
<i>Date of Birth</i>	28 December 1987
<i>Nationality</i>	Dutch
<i>Gender/Age</i>	Male/36
<i>Address</i>	Brederode 1c 5582 ZE Waalre The Netherlands
<i>Phone</i>	+316 23 07 10 80
<i>E-Mail</i>	r.buel@tue.nl

RESEARCH INTERESTS

Theoretical physics with emphasis on computational fluid dynamics of viscoelastic fluids, elastic turbulence, polymer processing, self-assembly of polymers and thermodynamics applied to soft matter in equilibrium and non-equilibrium.

PROFESSIONAL APPOINTMENTS

Postdoctoral researcher 2023-2024
Eindhoven University of Technology, Eindhoven, The Netherlands

- Subject: "Modelling the melting behaviour of recycled plastic in twin-screw extruders."
- Adviser: Prof. Dr. ir. Patrick Anderson

EDUCATION

PhD Theoretical Physics 2017-2022
Technical University Berlin, Berlin, Germany

- Thesis: "Active and Passive control of elastic turbulence in complex fluids."
- Adviser: Prof. Dr. Holger Stark.
- Passed with distinction (summa cum laude)

Master of Science Applied Physics 2013-2016
Eindhoven University of Technology, Eindhoven, The Netherlands

- Externship: "Langevin dynamics simulations on polyelectrolyte complexes."
Brandeis University, Waltham MA, USA
- Adviser: Prof. Dr. Michael F. Hagan.
- Thesis: "Supramolecular self-assembly of oppositely charged particles"
- Adviser: Prof. Dr. ir. Paul van der Schoot.

Bachelor of Science Applied Physics 2006-2013
Eindhoven University of Technology, Eindhoven, The Netherlands

- Deepening Minor in Applied Physics
- Thesis: "Cross-sectional scanning tunnelling microscopy study on Zn and Mn doped GaP."
- Adviser: Prof. Dr. Paul M. Koenraad

LIST OF PUBLICATIONS

- **R. van Buel** and H. Stark, *Mixing in viscoelastic fluids using elastic turbulence*, Eur. J. Phys., (2023). Manuscript submitted for publication.
- **R. van Buel** and H. Stark, *Characterizing elastic turbulence in the three-dimensional von Kármán swirling flow using the Oldroyd-B model*, Phys. Fluids **34**, 043112 (2022).
- **R. van Buel** and H. Stark, *Active open-loop control of elastic turbulence*, Sci. Rep. **10**, 15704 (2020).
- **R. van Buel**, D. Spitzer, C.M. Berac, P. van der Schoot, P. Besenius, and S. Jabbari-Farouji, *Supramolecular copolymers predominated by alternating order: Theory and application*, J. Chem. Phys. **151**, 0149902 (2019).
- J. Grawitter, **R. van Buel**, C. Schaaf and H. Stark, *Dissipative systems with nonlocal delayed feedback control*, New J. Phys. **20**, 1113010 (2018).
- **R. van Buel**, C. Schaaf and H. Stark, *Elastic turbulence in two-dimensional Taylor-Couette flows*, Europhys. Lett. **124**, 140001 (2018).

RESEARCH EXPERIENCE (Reference on demand)

Contributed Talk 29 July - 4 August <i>International congress on Rheology, Athens, Greece.</i> Title: Mixing in viscoelastic fluids using elastic turbulence.	2023
Poster Contribution 23 - 26 November <i>International conference on Control of Self-organizing Nonlinear systems, Potsdam, Germany.</i> Title: Mixing enhancement due to elastic turbulence.	2022
Contributed Talk 26 - 28 September <i>Internal Workshop on Control of Self-Organizing Nonlinear Systems, Wittenberg, Germany.</i> Title: Elastic turbulence in the von Kármán and Taylor-Couette flow.	2022
Contributed Talk 31 March - 5 April <i>DPG-Frühjahrstagung, Regensburg, Germany.</i> Title: Elastic Turbulence in von Kármán geometry.	2022
Contributed Talk 29 August - 2 September <i>International conference on Control of Self-organizing Nonlinear systems, Potsdam, Germany.</i> Title: Active and passive control of Elastic Turbulence.	2021
Contributed Talk 18 - 23 July <i>Liquids, Prague, Czech Republic. Online talk.</i> Title: Controlling Elastic Turbulence.	2021
Contributed Talk 22 - 24 March <i>DPG-Frühjahrstagung, Dresden, Germany. Online talk.</i> Title: Controlling Elastic Turbulence.	2021

- Poster Contribution** *20th - 22nd August* 2019
Internal Workshop on Control of Self-Organizing Nonlinear Systems, Wittenberg, Germany.
 Title: Characterizing and controlling elastic turbulence in a viscoelastic fluid.
- Contributed Talk** *4 - 8 June* 2019
International Soft Matter Conference, University of Edinburgh, Edinburgh, Scotland.
 Title: Characterizing and controlling elastic turbulence in a viscoelastic fluid.
- Contributed Talk** *31 March - 5 April* 2019
DPG-Frühjahrstagung, Regensburg, Germany.
 Title: Elastic turbulence at low Reynolds numbers and its control.
- Poster Contribution** *9 - 13 September* 2018
International conference on Control of Self-organizing Nonlinear systems, Warnemünde, Rostock, Germany.
 Title: Elastic turbulence in two-dimensional Taylor-Couette flows.
- Poster Contribution** *11 - 16 March* 2018
DPG-Frühjahrstagung, Berlin, Germany
 Title: Elastic turbulence at low Reynolds numbers and its control.
- Poster Contribution** *5 - 9 February* 2018
Flowing Matter, Lisbon, Portugal.
 Title: Elastic turbulence at low Reynolds numbers and its control.
- Poster Contribution** *20th - 22nd August* 2017
Internal Workshop on Control of Self-Organizing Nonlinear Systems, Wittenberg, Germany.
 Title: Characterizing and controlling elastic turbulence in a viscoelastic fluid.
- Seminar** 2017
Institut für Theoretische Physik, Freie Universität, Arnimallee 14, Berlin, Germany.
 Seminar on the supramolecular self-assembly of oppositely charged particles in the group of Prof. Dr. Roland Netz.
- Research fellowship** 2016
Institute of Physics, Johannes Gutenberg-Universität, Staudingerweg 7-9, 55128 Mainz, Germany.
 Research fellowship from October to December under the supervision of Dr. Sara Jabbari Farouji. Investigating the self-assembly of copolymers consisting of two oppositely charged particles using an 1D anti-ferromagnetic Ising model.

EXTRACURRICULAR ACTIVITIES

Intro parent introduction course

Summer 2011

Student society J.D. van der Waals, Eindhoven, The Netherlands

Giving a one day course to 12 students, from various parts of the university, to train them for the upcoming introduction week. The training focuses on the responsibilities of the parents towards the new students and discusses how to deal with problematic events.

Intro parent

2010-2012

Student society J.D. van der Waals, Eindhoven, The Netherlands

Responsible for up to 12 upcoming students during various activities concerning the introduction of the students to the Physics Faculty and student society J.D. van der Waals. Actively helping the new students with questions during their first year.

Organising Foreign Excursion

2007-2008

Student society J.D. van der Waals, Eindhoven, The Netherlands

Member of committee organising a 21 day trip to South Korea for a group of 25 participants. Over 10 scientific visits were made to universities and companies in Seoul, Deajon, Busan and Gyeongju.

Foreign Excursion

Summer 2008

South Korea

Member of committee responsible for leading a group of 25 participants on cultural and scientific excursions throughout South Korea.

Intro committee

2006-2007

Student society J.D. van der Waals, Eindhoven, The Netherlands

Member of committee responsible for various activities concerning the introduction of upcoming students to the Physics Faculty and student society J.D. van der Waals.

PROGRAMMING SKILLS

Python (proficient), C++ (intermediate), understanding of machine learning algorithms (intermediate), Computational Fluid Dynamics (proficient), Finite Volume Methods (proficient).

LANGUAGES

Dutch (*mother tongue*), **English** (*fluent*), **German** (*Intermediate*).

INTERESTS AND PERSONALITY

In general, I am a creative, reliable and independent person that likes to be challenged and solve problems. I also enjoy training our dog, a one year old border collie, with my partner and together we go on hikes.

In my role as a Team leader I developed strong leadership abilities. In a leadership position I lead by example and always strive to obtain the best results out of my team.

Regarding my personal activities, I have been participating in winter sailing competitions in a 470, a sportive two-person dinghy, which has significantly improved my teamwork and sailing skills. Moreover, I go climbing (bouldering) and snowboarding, which I find both fun and challenging. It is a way to push my physical and mental boundaries, which includes fear of heights.