



Job Advertisement
Scientific Research Assistant
at the Institute for Analysis and Algebra

Prof Dr. Timo de Wolff

Universitätsplatz 2
38106 Braunschweig
Deutschland

Starting at **August 1st, 2024 (or later)**, the Institute of Analysis and Algebra is searching for a **Scientific Research Assistant (m/f/d)** (75%) to obtain a **PhD-degree** (salary grade EG 13 TV-L; part time).

Braunschweig, May 13th, 2024

This position will be filled on a fixed-term basis for an initial period of three years. The successful applicant will be given the opportunity to pursue a PhD and to obtain further scientific qualification.

Working Area:

The position is opened in the research group „**Applied Algebra**“. The topic of the PhD-project will be "**Nonnegativity and Polynomial Optimization**".

Polynomial optimization is a thriving research area with countless applications. Solving problems in this area crucially builds on certifying nonnegativity of multivariate real polynomials, a key problem in real algebraic geometry. The goal of the project is the investigation of certificates of nonnegativity, especially sums of nonnegative circuit polynomials (SONC). Besides theoretical questions real world applications will be investigated.

The position is partially state funded, and partially funded by the DFG (German Research Association) research project „**Sums of nonnegative circuit polynomials and combinatorics in polynomial optimization**“. As such, it comes with a mild teaching obligation. position and comes with a teaching obligation of ca. 1.5 hours per week.

Requirements:

- Masters degree in Mathematics (or a related field) with very good grades, and very good English skills.
- Knowledge in at least one of the following areas is desired: (real) algebraic geometry, (convex) optimization (e.g. SDPs).
- Knowledge in the following areas are a plus: SONCs, geometric / relative entropy programming, SOS/SDP, combinatorics, convexity, programming skills.

Note that German skills are **not** required for this position initially, but it is expected that non-German speaking applicants learn initial German skill within their first year. International applicants will be supported to learn German while holding the position.

Note furthermore that said PhD project is carried out in **cooperation** with the group of **Prof. Dr. Thorsten Theobald** at Goethe University Frankfurt/Main, Germany. It is hence expected that a successful applicant is willing to actively contribute to this cooperation, and to visit the Frankfurt group on a regular basis (at least once a semester). The project is moreover part of the DFG Special Priority Program „**Combinatorial Synergies**“. Also in regard of SPP events an active participation is expected.

Additional information regarding the position will be provided by Prof. Dr. Timo de Wolff via the address applied_algebra@tu-braunschweig.de.

The deadline for applications is **June 14th, 2024**.

Please send your application containing of a **cover letter**, a **CV**, copies of **degree certificates** (or preliminary certificates), and **up to two letters of recommendation** (if available) by email to: applied_algebra@tu-braunschweig.de.

With around 17,000 students and 3,800 employees, the Technische Universität Braunschweig is one of Germany's leading institutes of technology. It stands for strategic and performance-oriented thinking and acting, relevant research, committed teaching, and the successful transfer of knowledge and technologies to the economy and society. We consistently advocate for family friendliness and equal opportunities.

Our research focuses are mobility, engineering for health, metrology, and city of the future. Strong engineering and natural sciences are our core disciplines. These are closely interconnected with economics, social and educational sciences and humanities.

Our campus is located in the midst of one of the most research-intensive regions in Europe. We work successfully together with over 20 research institutions in our neighborhood as we do with our international partner universities.

Further notes

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a form of evidence of your handicap to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (*Niedersächsisches Gleichberechtigungsgesetz—NGG*) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from woman are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at

<https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen>

Application costs cannot be reimbursed.