Research Training Group π^3:
Parameter Identification – Analysis, Algorithms, Applications

RTG 2224

π^3 is a collaborative project between mathematicians of the Center for Industrial Mathematics (ZeTeM); mathematicians in analysis, topology, and statistics; and applied scientists of the University of Bremen. We invite applications for a

PhD position (75% of a full position)

in the area of dynamical systems in the framework of project R2-8: **Identification of parametric control based on nonlinear dynamics**.

This project concerns the analysis of minimally invasive optimal control schemes that exploit the intrinsic dynamics of the system to be controlled. With applications to manoeuvering in mind, the project in particular concerns control schemes based on relative equilibrium states, and is thus related to motion and trim primitives in Lagrangian mechanics. The challenges include the existence of states as a skeleton for the control objective, their stabilisation by control, and the balance of time scales of control compared with intrinsic dynamics. Further directions include estimating the basins of attraction and the landscape of local optima generated in this fashion.

We are searching for an enthusiastic and committed researcher with interest in dynamical systems as well as in developing and applying new mathematical models and algorithms. Within the research training group, the PhD student will be part of Applied Analysis group at the Faculty of Mathematics, working under the supervision of Prof. Jens Rademacher.

Requirements:

- M.Sc. or equivalent degree with excellent grades in mathematical sciences or related fields.
- Skills in scientific computer programming.
- Experience in the field of dynamical systems is advantageous.
- Industry or research internships are advantageous.
- Fluency in English.
- Desire to work in an international and interdisciplinary team.

The position is for a fixed term of 3 years. The earliest starting date for each position in the research training group is 1 October 2019. The salary is according to the German federal employee scale TV-L E13, 75% of a full position (i.e., approximately € 1700-1900 monthly net income). This call is open until all positions are filled.
Applicants are invited to submit their letter of motivation including a reference to PhD project R2-8, an extended CV including copies of certificates, a publication list (as far as applicable), one recommendation letter from a math professor, and contact information of two more scientists as possible referees.
The recommendation letter should be sent by the math professor directly to us (pi3-application@math.uni-bremen.de), while the application file should only include her/his name and affiliation.
All relevant documents, quoting the official reference number A 297 / 18, should be submitted by January 13, 2019, – preferably electronically as a single PDF file to pi3-application@math.uni-bremen.de – to the π^3-coordination: Dr. Tobias Kluth, Zentrum für Technomathematik, Universität Bremen, Bibliothekstr. 5, 28359 Bremen.

The University of Bremen has received a number of awards for its gender and diversity policies and is particularly aiming to increase the number of female researchers. Gender equality will be given special emphasis within this research training group. Applications from female candidates, international applications and applications of academics with a migrant background are explicitly welcome.
Disabled persons with the same professional and personal qualifications will be given preference.

Further enquiries may be addressed to

Prof. Jens Rademacher
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rademach@math.uni-bremen.de