PhD: Structure of Hecke von Neumann Algebras

**Faculty/department** Electrical Engineering, Mathematics and Computer Science  
**Level** Master degree  
**Maximum employment** Maximum of 38 hours per week (1 FTE)  
**Duration of contract** 4 years  
**Salary scale** €2222 to €2840 per month gross

**Electrical Engineering, Mathematics and Computer Science**  
The Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) is known worldwide for its high academic quality and the social relevance of its research programmes. The faculty’s excellent facilities accentuate its international position in teaching and research. Within this interdisciplinary and international setting the faculty employs more than 1100 employees, including about 400 graduate students and about 2100 students. Together they work on a broad range of technical innovations in the fields of sustainable energy, telecommunications, microelectronics, embedded systems, computer and software engineering, interactive multimedia and applied mathematics. https://youtu.be/PsbUgi9A_cA

Research at the Delft Institute of Applied Mathematics (DIAM) centres around the analysis of mathematical models arising in science and engineering. This research is both fundamental and applied in nature and is often inspired by technical applications. The department plays an active role in translating research results into concrete, practical applications. It maintains intensive contacts with other TU Delft departments, the major technological institutes, and the research laboratories of major companies. Within its own subject field, the department provides teaching for the Applied Mathematics BSc and MSc programmes, and also contributes to the teaching of mathematics courses within other academic programmes at the TU Delft and within national programmes such as "MasterMath".

The Analysis group is one of the key research groups at DIAM. Internationally, the group has a longstanding tradition of excellence in the areas of functional analysis, partial differential equations, and stochastic analysis.

**Job description**  
This is a 4-year PhD position in Mathematics for the project “The structure of Hecke von Neumann algebras”. The daily supervisor will be Dr. M.P.T. Caspers. You will be working on a topic within the area of operator algebras, with relation to geometric group theory. The aim is to look at structural results of so-called Hecke von Neumann algebras and obtain potential (sub)classification results for them. During the PhD project you will also be involved in teaching activities and other research activities of the Analysis group at the TU Delft. The starting date is (not later than) September 1, 2018.

**Requirements**  
You recently obtained (or are about to obtain) a Master degree in mathematics or a related field. A strong background in functional analysis is required, preferably directed
towards operator theory. Learning more about operator theory/von Neumann algebras can (and will) be part of the PhD project. In addition, a PhD candidate may benefit from experience in one or more of the following subjects: representation theory, quantum groups, and geometric group theory.

Conditions of employment
The TU Delft offers a customisable compensation package, a discount for health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. An International Children’s Centre offers childcare and an international primary school. Dual Career Services offers support to accompanying partners. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills. Please visit http://graduateschool.tudelft.nl/ for more information.

Information and application
For more information about this position, please contact Dr. M. P. T. Caspers, e-mail: M.P.T.Caspers@tudelft.nl. Please include in your application a motivation letter, a CV, and a complete list of courses you have taken with grades (Bachelor and Master courses). In addition, you should give at least one reference whom we may ask for a reference letter (name and e-mail), which should be (or include) the adviser of your MSc thesis project. If applicable, please also attach a (draft) version of your Master thesis. Please e-mail your application by 15 March 2018 to P.T.M. van den Bergh, Hr-eemcs@tudelft.nl.

Later applications will be considered until the position is filled.
When applying for this position, please refer to vacancy number EWI2018-03.