

Professor in Geomagnetism

DTU Space at Technical University of Denmark invites applications for a position as Professor in Geomagnetism.

DTU Space is the leading institution of public space activities in Denmark. The mission of the Institute is to conduct research, development, scientific advice, education, and innovation at the highest international level within the following areas: Space Technology & Instrumentation, Earth Observation & Geoscience and Space & Astrophysics. DTU Space is engaged in several engineering educations based on high international level research at the institute. Particular emphasis is on the BSc and MSc programs in Earth and Space Physics and Engineering.

Over the past decade, DTU Space has established itself as a world leader in research and applications involving the Earth's magnetic field, in particular the exploitation of satellite measurements to produce advanced global geomagnetic reference models. The position of Professor in Geomagnetism is central to DTU Space's strategic effort in the area of Solid Earth Geophysics. The focus of the position is on observation-driven computational modelling and the development of new technologies based on satellite magnetic observations for determining the physical properties of the Earth's interior and its solar-terrestrial environment.

The professor will be attached to the division of Geomagnetism, which is one of the seven divisions comprising DTU Space.

Responsibilities and tasks

The successful candidate is expected to lead the institute's activities within numerical modelling and inversion of geophysical observations, with particular focus on global geomagnetic field modelling. The assignments include research, teaching and, ideally, innovation, and/or scientific advice. The successful candidate is to lead mathematical modelling and data inversion activities within geomagnetism, one of the institute's strategic research areas, and through research and collaboration with other research entities at DTU Space, strengthening DTU's international leading position in geomagnetism. The research fields to be covered include: fundamental research into the Earth's magnetic field and its temporal changes, study of physical properties and processes in Earth's interior, geophysical data inversion techniques, methods of potential field modelling, and satellite mission design concepts.

A particular emphasis will be ESA's recently launched Swarm satellite mission, in which DTU Space was a lead proposer and now heads the international consortium for data exploitation. Magnetic data from Swarm are providing the best-ever survey of the Earth's magnetic field, with its three satellites acting together as a planetary scale gradiometer. The successful candidate is expected to work to ensure maximum return from this mission, constructing advanced geomagnetic reference models, and carrying out interpretation of signals from Earth's core, crust, oceans, ionosphere, and magnetosphere.

The applicant must demonstrate the ability to carry out world-class research in geomagnetism, and have experience in managing large international projects.

The primary tasks are:

- Research within geomagnetism, i.e. academic leadership, including identification and cultivation of new fields of research
- Designing and leading the construction of global geomagnetic reference models, based on satellite and ground-based magnetic observations
- Development of new, physics-based, mathematical models in the geomagnetic field due to sources in the Earth's crust, core, oceans, ionosphere, and magnetosphere
- Development of new computational methods for the inversion of geophysical data
- Design of new methods, platforms and satellite missions for Earth observation
- Applications of magnetic data and reference models, e.g. in navigation and orientation systems, on both local and global scales
- Research-based teaching, including supervision of PhD, MSc, and BSc projects as well as training of postdoctoral researchers
- External collaboration

- Other duties:
 - Pedagogical guidance and supervision of assistant professors
 - Academic assessment work
 - Knowledge exchange with society at large
 - Innovation and/or scientific advice

Collaboration with other research groups at DTU and at DTU Space.

The successful candidate is expected to take a lead position in teaching at the BSc, MSc, and PhD levels.

Qualifications

Qualification requirements for this professorship:

- A high level of original scientific production at international level that has contributed to develop the field of geomagnetism.
- Documented teaching experience at various university levels
- Successful research management experience as well as capability of initiating and developing collaborations with external partners.

Assessment

In the assessment of the candidates, consideration will be given to

- the ability to teach
- scientific production at international level, research potential and ability to lead and develop a research team
- the ability to promote and utilize research results
- experience with innovation activities
- an all-round experience basis, including international experience
- the ability to contribute to the development of internal and external cooperation
- track record in attracting funding to the research area
- visions within the research area

Salary and terms of employment

The appointment will be based on the collective agreement with the Confederation of Professional Associations. The allowance will be agreed with the relevant union.

Further information

Further information may be obtained from Director of DTU Space, Kristian Pedersen, tel.: +45 4525 9501.

You can read more about DTU Space at www.space.dtu.dk

Application procedure:

Please submit your online application no later than **XXX 2017**.

Applications must be submitted as **one pdf file** containing all materials to be given consideration. To apply, please open the link "Apply online," fill in the online application form, and attach **all your materials in English in one pdf file**. The file must include:

- Application (cover letter) addressed to the President
- CV
- Diploma (MSc/PhD)
- List of publications indicating scientific highlights
- H-index, and ORCID (see e.g. <http://orcid.org/>)
- Documentation for teaching experience (e.g. in the form of a teaching portfolio)
- A plan for future research

All interested candidates irrespective of age, gender, disability, race, religion or ethnic background are encouraged to apply.