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## Nuclear fusion expert Niek Lopes Cardozo to TU / e

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**Prof.dr. Niek Lopes Cardozo, currently still head of the Fusion Physics department of the FOM Institute for Plasma Physics Rijnhuizen, will become full professor at TU / e as of 1 May. He will set up an ambitious research and education program in the new Chair of Science and Technology of Nuclear Fusion. There will also be a special nuclear fusion master's program.**

*Niek Lopes Cardozo (photo: Ernst Bode)*

TU / e has created the new chair as a result of the start of the international ITER project. That installation will generate 500 MW of power from nuclear fusion, ten times more than is necessary to operate the reactor. Nuclear fusion is the energy source of the sun and stars: light nuclei merge into heavier ones and release enormous amounts of energy.

The spearhead of Lopes Cardozo is the development of a specialized master's program in the field of nuclear fusion. In collaboration with foreign training centers and with FOM-Rijnhuizen, the Dutch fusion energy research center, he wants to make TU / e an important hub in the new European fusion education network, FUSENET, which he has initiated.

In addition to education, research is an important goal of the new professor. The research at the university will be in line with the existing Dutch merger research. Here too, intensive cooperation with other groups is important: within the TU / e, but also with research groups outside the university such as FOM-Rijnhuizen, the partners in the 3TU federation and the major centers for fusion research in Europe. Important topics of research: the behavior of alpha particles in a burning plasma and methods to influence this, and the interaction of the plasma with the wall of the reactor. Both technology and physics will be important in research and education.

### **Logical location**

TU / e is a logical location for the merger chair because it can build on existing expertise. This applies primarily to plasma physics, which is central to nuclear fusion research and one of the spearheads of the Faculty of Applied Physics. But there is also a great deal of knowledge within the faculties of Electrical Engineering and Mechanical Engineering (control systems technology) that is of great importance for fusion research.

Prof.dr. Niek Lopes Cardozo (1957) studied experimental physics in Utrecht and obtained her PhD (1985) for nuclear fusion research at the FOM Institute for Plasma Physics Rijnhuizen. After several years at JET, the largest fusion reactor in the world in Culham (near Oxford), he became group leader at FOM-Rijnhuizen and in 2001 head of the Fusion Physics department. In 2003 he received the Royal / Shell prize for sustainable development and energy.

He has been a part-time professor at TU / e since 1994. He promoted approximately twenty young researchers. In addition to research and education, Lopes Cardozo has made extensive efforts to provide information, in particular to students, for which he developed the Fusion Road Show. Lopes Cardozo represents Dutch fusion research in various European committees and is Vice Chairman of the Governing Board of the European Domestic Agency for ITER, Fusion for Energy (based in Barcelona). Lopes Cardozo is co-initiator of ITER-NL, the Dutch consortium of the knowledge institutes TNO, FOM and NRG, which is committed to a strong Dutch participation in the international ITER project. This concerns both construction (industry and SMEs) and the scientific program (researchers).

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