

<https://www.nikhef.nl/jobs/vacatures/>

## **PhD position in particle physics (LHCb + theory)**

### **The Nikhef organization**

Nikhef is the national institute for subatomic physics in The Netherlands. At Nikhef, approximately 190 physicists and 75 technical staff members work together in an open and international scientific environment. Together, they perform theoretical and experimental research in the fields of particle and astroparticle physics. The Nikhef institute is a collaboration between six major Dutch universities and the Dutch Foundation for Scientific Research (NWO). Nikhef participates in large research collaborations, including experiments at CERN, the KM3NeT neutrino telescope in the Mediterranean, the VIRGO interferometer in Pisa, the Xenon1T dark matter experiment in Gran Sasso, the Pierre Auger cosmic ray observatory in Argentina and the eEDM research program in Groningen. Nikhef also hosts a group in theoretical physics, and groups for Physics Data Processing and detector R&D, all with good connections to the experimental programs.

### **The environment**

This position is settled to 50% in the Nikhef LHCb and Theory groups.

Our Nikhef theory group (<https://theory.web.nikhef.nl>) works on a broad range of areas in particle physics and cosmology. Research topics include effective field theories, collider physics at the LHC and the B factories, perturbative Quantum Chromodynamics and dark matter phenomenology.

Our Nikhef LHCb group is involved in the CERN research program of CP violation, rare decays of B mesons and exotic particle production. We contribute to the Vertex Locator silicon detector (Velo) and the Scintillating Fiber Tracker (SciFi), and to the Real Time Analysis (RTA) project for online triggering and reconstruction of events, as well as future detector upgrades.

Both groups and Nikhef as a laboratory provide a very stimulating and interactive environment with seminars, colloquia, journal club meetings, and discussion groups.

### **The position**

Flavor observables are extremely sensitive probes of new physics at high energies. Virtual effects of such heavy new physics can be described within the Standard Model Effective Field Theory (SMEFT). The available data from flavor observables can strongly constrain the SMEFT parameter space and complement high-energy observables at the LHC.

The focus of this position is on the interpretation of LHCb results in the SMEFT framework. The successful candidate will develop an interpretation framework and have the opportunity to contribute to measurements of LHCb observables in the SMEFT context.

### **Requirements**

To qualify for this position, you need to have or expect to complete a master in physics and dispose of a fundamental knowledge of particle physics. Strong programming skills are an extra benefit.

### **Offer**

The successful candidate will be employed by the NWO-I foundation and will obtain the status of junior scientist. The contract runs over 4 years. The gross monthly starting salary will be € 2.590,-, increasing to € 3.318,- in the fourth year. The conditions of employment of the NWO-I foundation are excellent. Information can be found at [www.nwo-i.nl](http://www.nwo-i.nl).

### **Application**

Nikhef is committed to being an inclusive and diverse organization. We specifically encourage candidates from groups that are underrepresented in physics to apply for this vacancy.

Qualified candidates are encouraged to apply by clicking the 'Solliciteer' button below. Please be prepared to upload a curriculum vitae, a brief motivation letter and a statement of research interests. You are also requested to provide email addresses of at least one referee who is willing to send a letter of recommendation on your behalf.

For full consideration, please submit your application until March 19, 2023.

Further information about this position can be obtained from dr. Mara Senghi Soares, [m.soares@nikhef.nl](mailto:m.soares@nikhef.nl), and dr. Susanne Westhoff, [susanne.westhoff@ru.nl](mailto:susanne.westhoff@ru.nl).