



The Paul Scherrer Institute is with 1300 employees the largest research centre for the natural and engineering sciences in Switzerland and a worldwide leading user laboratory. Its research activities are concentrated on the three main topics of solid-state physics, energy and environmental research as well as human health.

We investigate a combination of discontinuous Galerkin (DG) methods for the analysis of 3-dimensional electromagnetic near-field problems and the boundary integral (BI) method for truncating the tetrahedral finite element mesh. Metals in the optical region of the spectrum will be modeled as dispersive dielectrics. This project will extend the electromagnetic solver **hades3d** and be applied to cutting edge experimental designs. We have the privilege to work with an excellent infrastructure, including one of the fastest supercomputers in Europe ([www.cscs.ch](http://www.cscs.ch)), with the PSI being located between vibrant metropolitan areas.

Within the framework of a project funded by the Swiss National Science Foundation (SNF) on research into nanometer structured photo cathodes we are looking for a

## Postdoctoral scientist

### Your tasks

- Develop novel time domain algorithms for the solution of Maxwell's equations on tetrahedral grids
- Develop a 3-dimensional discontinuous Galerkin (DG) scheme to study nano-optical problems
- Develop an advanced boundary integral (BI) approach to truncate the tetrahedral finite element mesh
- Publish in peer reviewed, high quality journals
- Solicit and supervise bachelor and master students

### Your profile

You have a Phd in electrical engineering, physics or mathematics and a strong background in the numerical solution of partial differential equation systems, including a parallel approach, ideally coupled with experience in computational electrodynamics or the willingness to acquire it quickly. Experience with DG methods is a plus. You are eager to take on a high risk - high reward project. Ideally, you already have published in peer reviewed journals and are aware of its importance. You are a good team player but can also accomplish your task independently. Please submit with your application a list of publications and arrange for 2 letters of recommendation sent to us.

For further information please contact: Dr. Benedikt Oswald, phone +41 (0)56 310 32 12, [benedikt.oswald@psi.ch](mailto:benedikt.oswald@psi.ch)

Please submit your application to: Paul Scherrer Institut, Human Resources, Ref. code 8411, Thomas Erb, 5232 Villigen PSI, Switzerland or to: [thomas.erb@psi.ch](mailto:thomas.erb@psi.ch).

**[www.psi.ch](http://www.psi.ch)**

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**Verteiler**

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- T. Erb
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19. November 2009