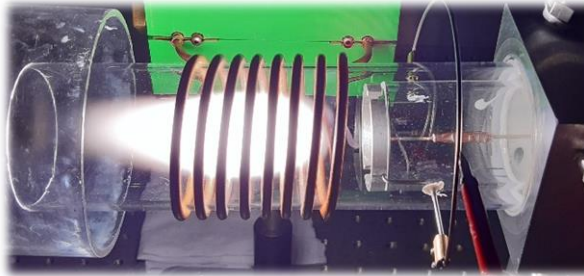


## Research Associate Position in Area of High Frequency Power Electronics



### Job Description:

The current research focus of the light, electronic ballast and plasma technology working group at the Light Technology Institute of the Karlsruhe Institute of Technology is the development of electrodeless gas discharge lamps, inductively coupled plasma torches and the associated ballasts. The gas discharge lamps are mainly technical UV lamps that are used, among other things, for water disinfection or paint curing. Plasma torch applications cover ammonia generation, nanoparticle synthesis, among others. Their output power ranges from a few watts to several kilowatts.

Inductively coupled plasma applications take place typically in MHz range, and up until now inefficient power supplies based on linear topologies are used. In our group, we are working to bring new efficient technologies for those applications. As already proved in our working group, the use of wide band-gap semiconductors such as silicon carbide (SiC) or gallium nitride (GaN) are very promising in resonant topologies for these purposes, providing an efficiency increment from 60 % to 96%. But in this regard more research is needed for increasing even more the efficiency, power level and power density.

The task of the candidate is to further develop and adapt the ballasts to the respective loads. This includes the development of new circuit topologies, the characterization of new power transistors, the development of suitable circuit board designs and the development of passive components.

Since we only carry out projects in cooperation with industrial partners, it is also part of your tasks to work together with the partners and to write reports to the project sponsor.

As a final destination, the researcher would have a wide range of possible topics for achieving a doctoral degree.

### Qualification:

- You have completed your degree in electrical engineering with a focus on power electronics or high-frequency technology or similar.
- You have excellent final grades.
- You have already been able to understand the theoretical basics of circuit technology.
- Knowledge in dealing with circuit simulation and design would be very beneficial.
- Independent and responsible work is expected.

### Institute:

Light Technology Institute  
KIT, Campus Süd

### Research field:

Power Electronics  
High Frequency Technic

### Begin:

As soon as possible

### Contact:

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