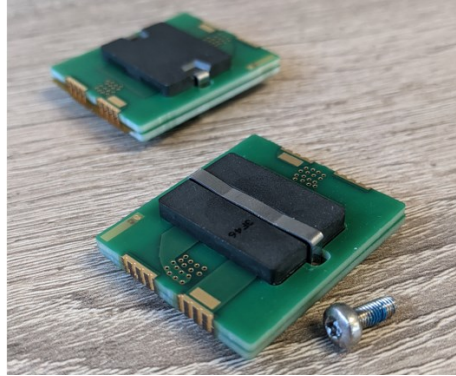


# Internship – Design of a High Frequency Planar Transformer

## Master internship project



### Summary:

During this internship you will have to design a low loss, high frequency, planar transformer.

### Problem definition:

At Lightyear we are constantly designing new types of power converters. With the rise of GaN the switching frequencies of these converters rises. This enables the use of very small high frequency magnetics. Planar transformers are a promising candidate of high frequency transformers since they can achieve very good coupling while also being cheap and reliable. However, with the increase of frequency the loss mechanisms and parasitic effects become increasingly difficult to model.

### Method:

Literature research, (2D) FEM, possibly numerical comparison, testing in lab. Can all be performed in-house.

### Research objectives:

During this research you will have the following goals:

- Model a planar transformer including leakage and magnetising inductances and loss components
- Minimize the transformer losses
- Design the transformer in CAD software
- Measure the transformer properties and compare them to the modelled properties

### Courses and supervision:

Courses in EM and PE are required. Courses in FEM are a plus, but not required.

From Lightyear side you will have a daily supervisor with a background in EM and FEM.

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### Contact:

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