

## Contribution submission to the conference Regensburg 2022

**Characterization of Boron-doped diamond and r-plane sapphire for plasma diagnostics in future nuclear fusion reactors -A survey of electrical and dielectric properties** — ●THEO ANDREAS SCHERER, DIRK STRAUSS, GAETANO AIELLO, FRANCESCO MAZZOCCHI, ANDREAS MEIER, and SABINE SCHRECK — KIT Karlsruhe ; D-76344 Eggenstein-Leopoldshafen

p-Boron-doped polycrystalline CVD diamond samples were produced and delivered by the German company Diamond Materials in Freiburg (Germany). In a first step, main properties of this candidates for diagnostic and/or heating windows in future nuclear fusion reactors were investigated. By a special measurement technique, it was possible to determine the Boron doping concentration in Diamond by measurement of the resistive properties by using the van der Pauw method. So prepared, an irradiation campaign with neutrons and/or heavy ions on these samples will follow. The second material investigated, was r-plane single crystalline sapphire. For the first characterization the dielectric properties of a 3\*-wafer in dependency of the frequency in a FABRY-PEROT resonator setup was performed. Also, this is the preparation for the next irradiation experiments in this project.

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