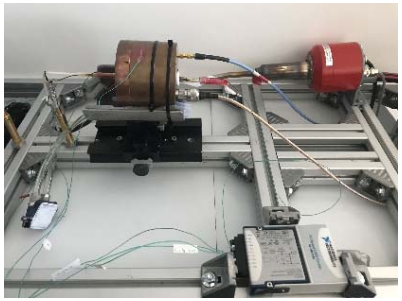
Karlsruher Institut für Technologie

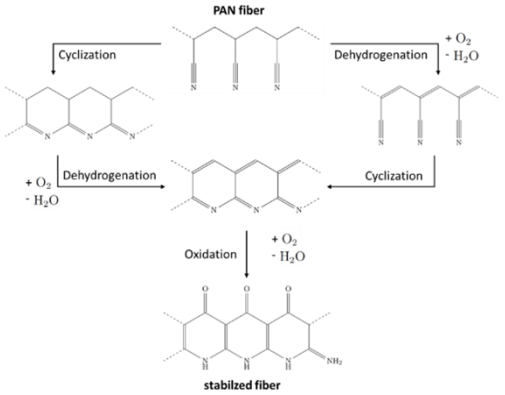
Internship at IHM

Dielectric Measurements of PAN Fibers in N_2 Atmosphere

Carbon fibers are used in lightweight construction applications due to their good mechanical properties, but conventional production is more expensive compared to steel and aluminum. Dielectric heating offers the possibility to replace conventional heating processes and thus to achieve an increase in energy efficiency and a reduction of the process time due to volumetric heating. In order to design an appropriate applicator the knowledge of the dielectric properties is key.
The measurement with N_2 will separated the chemical reactions taking place so that the influence on the dielectric properties can be measured only for the cyclization.

In the internship the student should adapt an existing measurement setup in order to measure with a heated N_2 atmosphere. A preliminary study with Comsol or CST can be conducted. Then the dielectric measurements need to be carried out and evaluated (Matlab, CST). Depending on the time frame an extension to microwave heating is possible.





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