Contribution ID: **12** Type: **not specified**

Microwave Hybrid System in Carbonization and Graphitization

Wednesday, 26 March 2025 14:20 (3 minutes)

The manufacturing process of carbon fiber can be divided into four parts including stabilization, pre-carbonization, post-carbonization and graphitization. Among four parts, post-carbonization and graphitization must be carried out in higher temperature. According to some research, using microwave heating can get better efficiency in comparison with conventional heating. However, plasma is generated when microwaves are in higher temperature, and plasma damages carbon fiber. As a result, the goal of this experiment is to design a continuous microwave hybrid system to finish the carbonization and graphitization. To construct the microwave cavity, we use HFSS to simulate some parameters in order to
meet the desired specification. And we will do some measurements to test whether the properties of products are up to the standard.

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Session Classification: Poster Talks

Track Classification: Microwave and Plasma Physics