PREPARATION AND CHARACTERIZATION OF HIGH SURFACE AREA BIOCHAR THROUGH PYROLYSIS OF PINE NUT SHELLS IN A RADIANT BURNER REACTOR

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During the last decade, thin-shell radiant burners made of porous Ni-Al-Cr intermetallics by self-propagating high-temperature synthesis have developed in TSC SB RAS [1-4]. This presentation aims to discuss new results on the application of burners for fast pyrolysis of biomass. It was experimentally found that pine nut shell treatment lasting from 3 to 8 seconds results in biochar forming with a specific surface area of up to 500 m^2/g. Intense radiant flux from the burner surface plays a leading role in forming the highly developed surface of the nut shell derived carbon. An overview of the effect of process parameters on biochar formation will be presented.

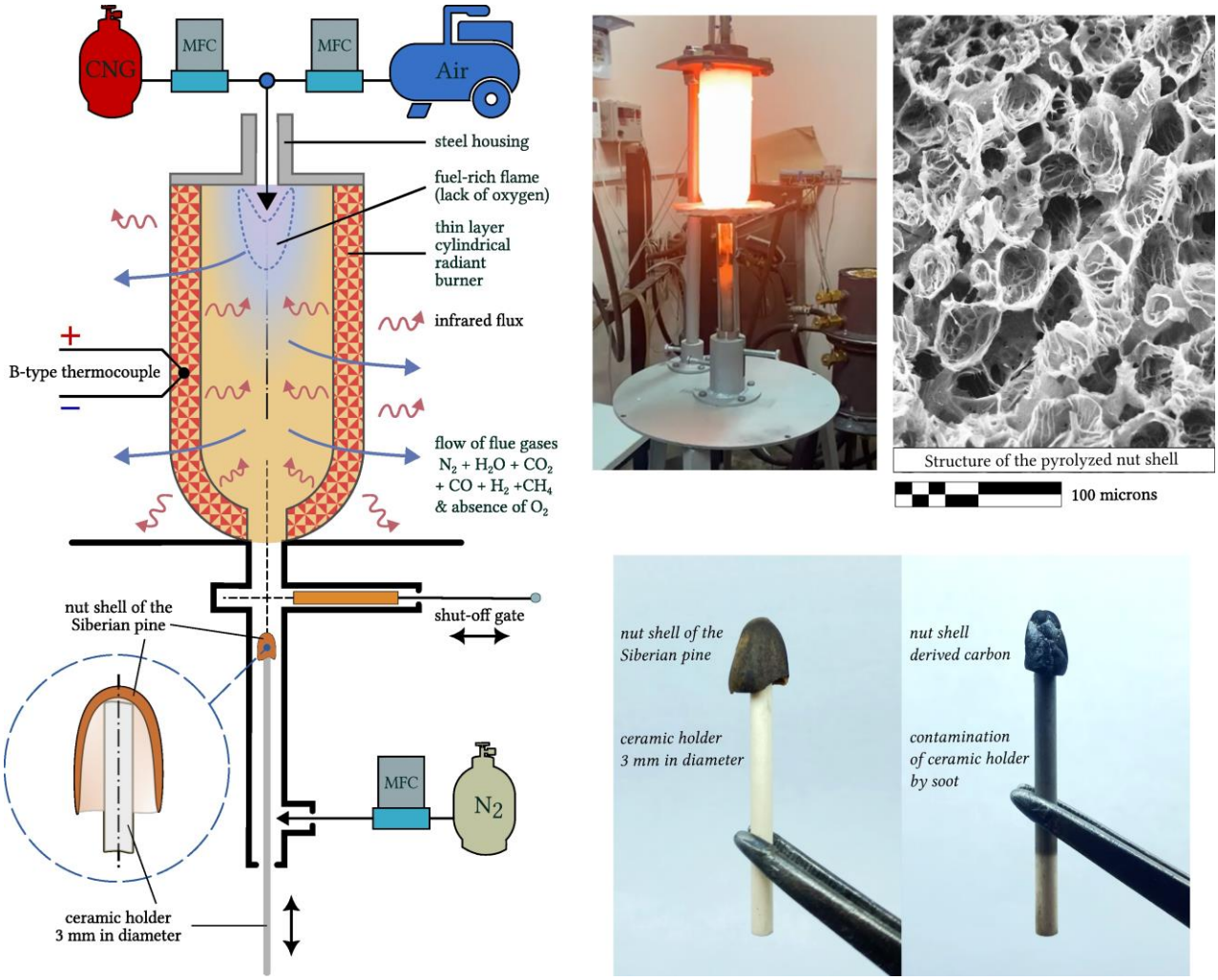

Fig.1. Schematic diagram of experimental apparatus used for fast pyrolysis of pine nut shells.

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