

# Biofuels and Bioenergy &

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**P**yrolysis or controlled heating of biodegradable and non-biodegradable polymers is an emerging technique for their safe decomposition and possible recycle. The mixture of volatile products resulting from pyrolysis is typically collected as the 'syngas', which is further separated by distillation into gaseous products to be used as fuels and precursors for the synthesis of various high molecular weight organic compounds. However, one major challenge associated with waste polymer pyrolysis is the handling of the residual solid byproducts, often designated as 'ash'. In our group we develop novel pathways to pyrolyze polymers such that the solid residues are useable forms of elemental carbon rather than ashes. Depending on the surface properties and the extent of crystallinity these carbon materials are further classified as glassy or activated. While activated carbon, often obtained from cellulosic materials such as paper waste, is employed in various industry-scale adsorption and filtration applications.

Physics Letters, 109, 2016, 063101.

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