# The production of a sheath around a stacked-cup carbon nanofiber

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Carbonaceous materials have the ability to withstand elevated temperatures and structural characteristics that often exhibit changes, especially at graphitization temperatures. Stacked-cup carbon nanofibers (GSI Creos Corp., 24PS-AR50) were heat treated at ca. 3000 ℃ for 10 minutes in a high-purity argon stream using a graphite-resistance furnace. The heat treatment has induced a nanoscale structural change resulting in a composite texture, i.e. multi-graphene sheets rolled into concentric cylinders sheathe the stacking morphology of truncated conical graphene layers. The edge sites of graphitic layers of stacked-cup carbon nanofibers are considered to stabilize through the structural change when releasing hydrogen at elevated temperature.

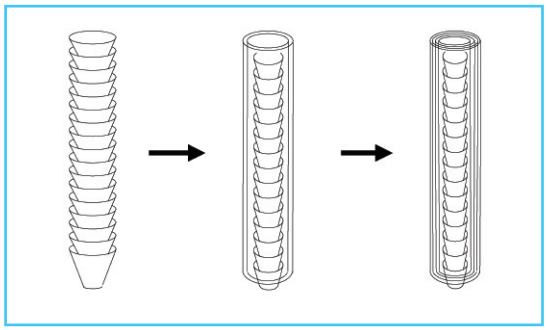

Fig. Schematic illustration of the structural conversion from stacked-cup to an MWNT-stacked-cup composite texture.



# Novel synthesis of the electroluminescent materials using microwave irradiation

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Transition metal complexes, especially iridium(III) complexes with 2-arylpyridine ligands such as *fac*-[Ir(ppy)$_3$] (ppyH = 2-phenylpyridine) have attracted much attention as phosphors for organic light-emitting diodes (OLED). We report on a novel synthesis method for the production of facial tris-ortho-metalated iridium(III) complexes *fac*-[Ir(L)$_3$] (L = 2-arylpyridine) by the reaction of $IrCl_3 \cdot nH_2O$ with a large excess of the corresponding 2-arylpyridine under microwave irradiation. The method does not require "dehalogening reagent" such as $AgCF_3SO_3$, and fac tris-ortho-metalated Iridium(III) complexes were obtained rapidly, selectively and efficiently compared to the procedure with standard oil-bath heating.

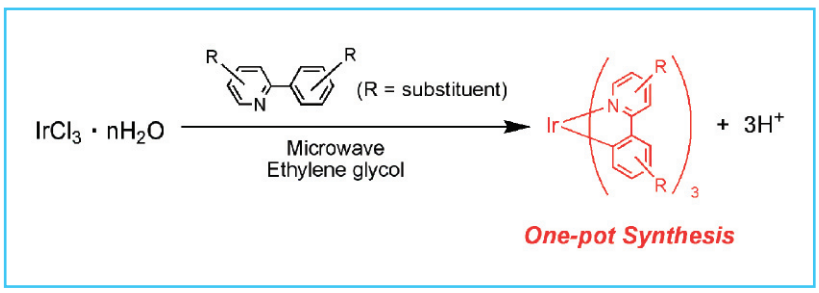


Fig. New synthetic route of phosphorescent material for OLED.