There is a need to provide conductive materials that may be fabricated from low-cost, abundant, environmentally benign and renewable materials.

There is a need to provide conductive materials useful in electrode materials for lithium-ion batteries that exhibit high specific capacity.

There is a need to provide conductive materials that are easily processable, have large accessible surface area, high carbon purity, high electrical conductivity and high structural integrity.

There is a need to provide conductive materials that may be fabricated through conventional and straightforward processes which may be conducted on a large commercial scale.

There is a need to provide conductive materials are stable when used in different electrolytes and perform well in a wide range of temperatures when used in an electrode material for energy storage devices.

There is a need to provide conductive materials that are free-standing without using any binding agent, thereby simplifying the fabrication process and reducing its overall cost.

Summary

According to the disclosure, there is provided a conductive fibrous material comprising a plurality of carbonaceous fibers, wherein each carbonaceous fiber is fused to at least one other fiber.

According to a first aspect, there is provided a conductive fibrous material comprising a plurality of carbonaceous fibers, wherein the carbonaceous fibers have a diameter of about 0.1 μm to about 15 μm and each carbonaceous fiber is fused to at least one other fiber.

Advantageously, the carbonaceous fibers are obtained from a phenolic fiber source, the phenolic fiber source having undergone a carbonization step.

Advantageously, the conductive fibrous material may be useful in an electrode material for energy storage devices.