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(54) **CARBON-COATED LITHIATED SILICON-BASED ELECTROACTIVE MATERIALS AND METHODS OF MAKING THE SAME**

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(57) **ABSTRACT**

Negative electrodes for electrochemical cells that cycle lithium ions are provided. The negative electrodes comprise electroactive material particles that exhibit a core-shell structure defining a core made of a lithiated silicon-based material and a shell surrounding the core that is a bi-layer structure including first and second carbon coating layers. An electrical conductivity of the first carbon coating layer is greater than that of the second carbon coating layer. A method of manufacturing a negative electrode material is provided in which a first carbon coating layer is formed on an outer surface of a silicon-based precursor particle. The silicon-based precursor particle is exposed to a lithium source to form a lithiated silicon-based particle having the first carbon coating layer. A second carbon coating layer is formed on the first carbon coating layer over the lithiated silicon-based particle to form an electroactive material particle.