CLAIMS

What is claimed is:

1. A method of rejuvenating a battery, comprising:

providing a charging device having a positive electrode and a negative electrode;

connecting the charging device with the battery by coupling the positive electrode and the negative electrode to a positive terminal of the battery and a negative terminal of the battery respectively;

performing a rejuvenating operation to the battery, the rejuvenating operation comprising:

determining a rejuvenation duration in time; and

providing a rejuvenating current to the battery for the rejuvenation duration to add electric charge to the battery,

wherein at any given time during the rejuvenation duration a natural logarithm of a ratio of the added electric charge to an initial charging state of the charging current substantially equals to a product of a negative constant and a length of time between a beginning of the rejuvenation duration and the any given time, the initial charging state indicating the electric charge added to the battery by the charging current at the beginning of the rejuvenation duration;

determining a resistance reduction of the battery after the rejuvenating operation, the resistance reduction representing a change of an internal resistance of the battery before and after the rejuvenating operation; and

performing a subsequent round of the rejuvenating operation in an event that the resistance reduction is greater than a predetermined threshold.

2. The method of claim 1, wherein the resistance reduction is an absolute value of the change of the internal resistance before and after the rejuvenating operation.

3. The method of claim 1, wherein the resistance reduction is a percentage of the change of the internal resistance before and after the rejuvenating operation.

4. The method of claim 1, further comprising:

repeating the performing of rejuvenating operation and the determining of the resistance reduction until the resistance reduction is determined to be less than or equal to the predetermined threshold.

5. The method of claim 1, wherein the determining of the initial charging state for the subsequent round of the rejuvenating operation comprises using the initial charging state from a previous round of the rejuvenating operation.

6. The method of claim 1, wherein the determining of the rejuvenation duration for the subsequent round of the rejuvenating operation comprises using the rejuvenation duration from a previous round of the rejuvenating operation.