Sphere Last-passage Algorithm for Charge Density on a Smooth (Convex) Conducting Surface

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In a series of papers, we have been developing last-passage algorithms such as last-passage algorithm [1] and off-centered last-passage algorithm on a flat conducting surface [2], quadrupole last-passage algorithm on an L-shaped conducting surface [3] and last-passage algorithm on a spherical conducting surface [4], held at (non)constant [5] potentials. All the previous last-passage algorithms can compute charge density at a specific point on a flat or spherical conducting surface only. Here, in this paper we further develop the last-passage algorithms on a smooth (convex) surface for charge density at a specific point where we can construct a tangent plane. We demonstrate the algorithm for charge density on a sphere, on a circular plate and on the unit cube held at unit potential. The results show excellent agreements with theoretical or other simulation ones.

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References

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