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## 0.1 Notation

While the notation is described in the main text at its first instance, we have also included this small note on the notation used to make it easier to look up. Notation that are only used in locally in smaller sections are not included here.

In the PinC project we have decided to try to keep different indexes tied different objects to help avoid confusion and increase readability. Since the  $i$  index is reserved for incrementing particles, the spatial  $x, y, z$ -indexes are  $j, k, l$  instead of the more usual  $i, j, k$ . So to make the transition between this document and the code easier we have also used the  $j, k, l$  indexes to denote the spatial area. This is the convention used by Birdsall and Langdon, (cite plasma physics via simulation).

Subscripts are always used to denote spatial index, and a superscripts are usually reserved for temporal cases. So  $\Phi_{j,k,l}^n$  means the potential at the timestep  $n$  and position  $j, k, l$ .

$\Phi$		Electric Potential
$\rho$		Charge Density