start

```
tempSurfaceStore= 0;
   discharge = 0
```

randomly shuffle positions   with subroutine `TwoDRandPos()`

iteration over rainfall particles

iteration over (x, y)

create random number   `rnum`

is?
$\texttt{rnum} < $ infiltration Kernel at (x, y)
and
store at $(x, y) <$ storage Kernel at (x, y) — yes → save particle in storage

no

is
periodic boundary
condition?

lookup flow direction

save particle in discharge

flow reaches boundary?   — else → is depression?   — true → add particle to temporal surface Storage

spread out particle over neighboring lower cells

true

save particle in outflow

Figure 1: flow chart of subroutine `SimCode` (simulation execution)

1