

```
m = 1.;  $\alpha$  = 0.2; n = 64; tf = 100.; p = 2;
```

```
nsol = NDSolve[Evaluate@Flatten[{Table[
  m x[i]''[t] == (x[i + 1][t] - 2 * x[i][t] + x[i - 1][t]) +  $\alpha$  (x[i + 1][t] - x[i]),
  {i, n}] /. {x[0][t]  $\rightarrow$  x[1][t] - 1, x[n + 1][t]  $\rightarrow$  x[n][t] + 1},
  Table[{x[i][0] == i + RandomReal[{-1, 1}]/2, x[i]'[0] == RandomReal[{-1, 1}]},
  {i, n}]}], Table[x[i], {i, n}], {t, 0, tf}];
```

```
Plot[Evaluate[Table[x[i][t], {i, 1, n}] /. nsol], {t, 0, tf},
  PlotRange -> All, Frame -> True, Axes -> False,
  ImageSize -> 450, AspectRatio -> 1]
```

