

proc__using__spatstat

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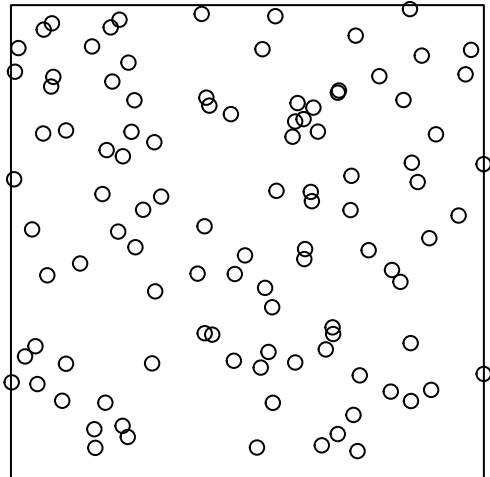
```
library(spatstat)
```

```
# Check to see how to use the function  
?rpoispp  
# Check to see how this is written  
#View(rpoispp)
```

```
# Plot a homogeneous Poisson process  
# p.1334 of https://mran.microsoft.com/snapshot/2016-04-25/web/packages/spatstat/spatstat.pdf  
# https://spatstat.org/SSAI2017/solutions/solution04.html
```

```
par(mfrow=c(1, 1))  
plot(rpoispp(lambda = 100, win=square(1)),main = "HPP (rate = 100)")
```

HPP (rate = 100)



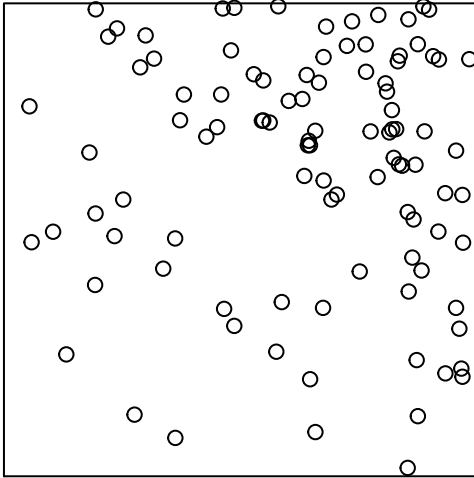
```
#plot(rpoispp(lambda = 50, win=square(1)),main = "HPP (rate = 50)")  
#plot(rpoispp(lambda = 10, win=square(1)),main = "HPP (rate = 10)")
```

```
# Plot a homogeneous Poisson process  
# p.33 of https://spatstat.org/resources/spatstatJSSpaper.pdf
```

```
#lambda_function <- function(x, y) 400*x  
#so that they have the same expected # of events but why ???
```

```
par(mfrow=c(1, 1))  
plot(rpoispp(lambda = function(x, y) 400*x*y, win=square(1)), main = "NPP (intensity = 100*x)")
```

NPP (intensity = 100*x)

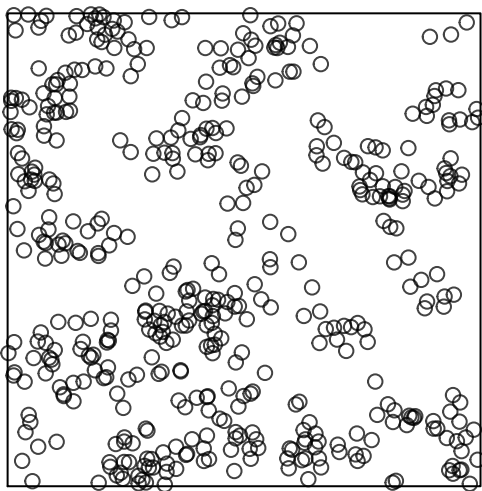


```
#plot(rpoispp(lambda = function(x, y) 50*x, win=square(1)), main = "NPP (intensity = 50*x)")  
#plot(rpoispp(lambda = function(x, y) 10*x, win=square(1)), main = "NPP (intensity = 10*x)")
```

```
?rMatClust  
#kappa = intensity  
#scale = radius of the clusters  
#mu = mean # of points per cluster or reference intensity ???
```

```
plot(rMatClust(kappa = 100, r = 0.05, mu = 5), main = "Matern (kappa = 100, r = 0.05, mu = 5)")
```

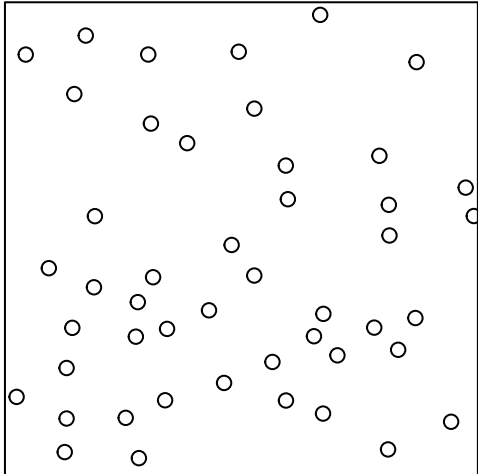
Matern (kappa = 100, r = 0.05, mu = 5)



```
?rMaternII  
# kappa = intensity  
# r = inhibition distance
```

```
# Plot a Matern I process
par(mfrow=c(1, 1))
plot(rMaternI(kappa = 100, r = 0.05), main = "Matern I (kappa = 100, r = 0.05)")
```

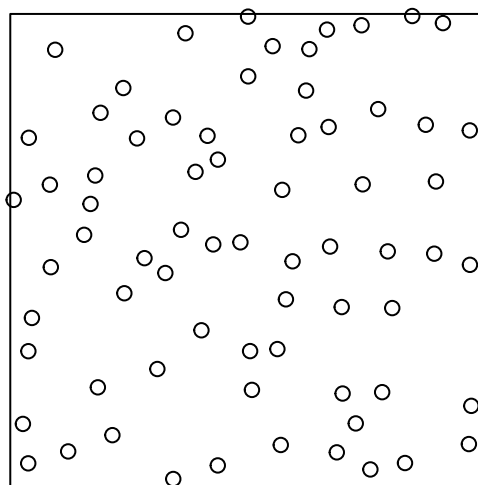
Matern I ($\kappa = 100$, $r = 0.05$)



```
#plot(rMaternI(kappa = 50, r = 0.05), main = "Matern I (kappa = 50, r = 0.05)")
#plot(rMaternI(kappa = 10, r = 0.05), main = "Matern I (kappa = 10, r = 0.05)")
```

```
# Plot a Matern II process
par(mfrow=c(1, 1))
plot(rMaternII(kappa = 100, r = 0.05), main = "Matern II (kappa = 100, r = 0.05)")
```

Matern II ($\kappa = 100$, $r = 0.05$)



```
#plot(rMaternII(kappa = 50, r = 0.05), main = "Matern II (kappa = 50, r = 0.05)")
#plot(rMaternII(kappa = 10, r = 0.05), main = "Matern II (kappa = 10, r = 0.05)")
```