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Zufallsprozesse und stochastische Integration (SS 2012).

Geometric Brownian Motion

Das folgende R Programm simuliert einen Pfad eines GBB prozesses.

```
1 set.seed(188)
2 r <- 1
3 sigma <- 0.5
4 x <- 10
5 N <- 100 # number of end points of the grid including T
6 T <- 1 # length of the interval [0 ,T] in time units
7 Delta <- T/N # time increment
8 W <- numeric (N +1) # initialization of the vector W
9 t <- seq (0,T, length =N +1)
10 for (i in 2:( N +1))
11 {
12   W[i] <- W[i -1] + rnorm (1) * sqrt ( Delta )
13 }
14 S <- x * exp ((r- sigma ^2/2)*t + sigma *W)
15 plot (t,S, type ="l",main =" geometric Brownian motion ")
```

