```r
# Generate a Hermite beta matrix using Dumitriu's Matrix Model
RM_beta <- function(N, beta){
  # Set the diagonal ~ N(0,2)
  P <- diag(rnorm(n = N, mean = 0, sd = sqrt(2)))
  # Get degrees of freedom sequence for offdigonal
  df_seq <- beta * (N - seq(1, N-1))
  # Set the off-1 diagonals as chi squared variables with df(beta_i)
  P[row(P) - col(P) == 1] <- P[row(P) - col(P) == -1] <- sqrt(rchisq(N-1, df_seq))
  # Rescale the entries by 1/sqrt(2)
  P <- P/sqrt(2)
  # Return the beta matrix
  P
}
```