function S = gen\_scheme\_gauss(L,P) % gaussian distribution with sigma=0.63 L - length of the generated sparse vector, P - percentage of "1" in the vector

nr = int32(L\*P\*0.01);

nus = zeros(1,L);

sigma=0.63;

gen=0;

run="ok";

mini=0.0;

dint=(erf(1.0/sqrt(2\*power(sigma,2))))/(2.0\*double(nr));

k=1;

while (k<=nr)

gen++;

maxi=sqrt(2.0\*power(sigma,2))\*erfinv(2.0\*k\*dint);

if (gen > 1 && run=="ok")

run="no";

endif

relax=0;

while ( gen > 0 && relax < 20)

relax++;

X = int32(unifrnd(mini,maxi)\*(L-1));

if (nus(X+1) == 0)

nus(X+1) = 1;

gen--;

relax=0;

endif

endwhile

mini=maxi;

k++;

endwhile

if(sum(nus) < nr)

n=1;

while ( gen > 0 && n<=nr )

if(nus(n) == 0)

nus(n) = 1;

gen--;

endif

n++;

endwhile

endif

sum(nus);

S=nus;