function S = gen\_scheme\_poiss(L,P) % Poisson gap distribution - length of the generated sparse vector, P - percentage of "1" in the vector

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

nus = zeros(1,L);

bigfac = 0;

smallfac = 0;

fac = double(L)/double(nr+1);

%t1=time();

do

nus = zeros(1,L);

k=0;

while ( k < L )

nus(k+1) = 1;

k++;

compar = 1.0;

gap\_count = 0;

while (compar >= exp(-fac\*sin((pi/2)\*k/(L-1))))

compar \*= unifrnd(0.0,1.0);

gap\_count++;

endwhile

k=k+gap\_count-1;

endwhile

if (sum(nus) > nr )

fac \*=1.04;

endif

if (sum(nus) < nr )

fac /=1.04;

endif

until (sum(nus) == nr)

%t2=time();

%t2-t1;

S=nus;