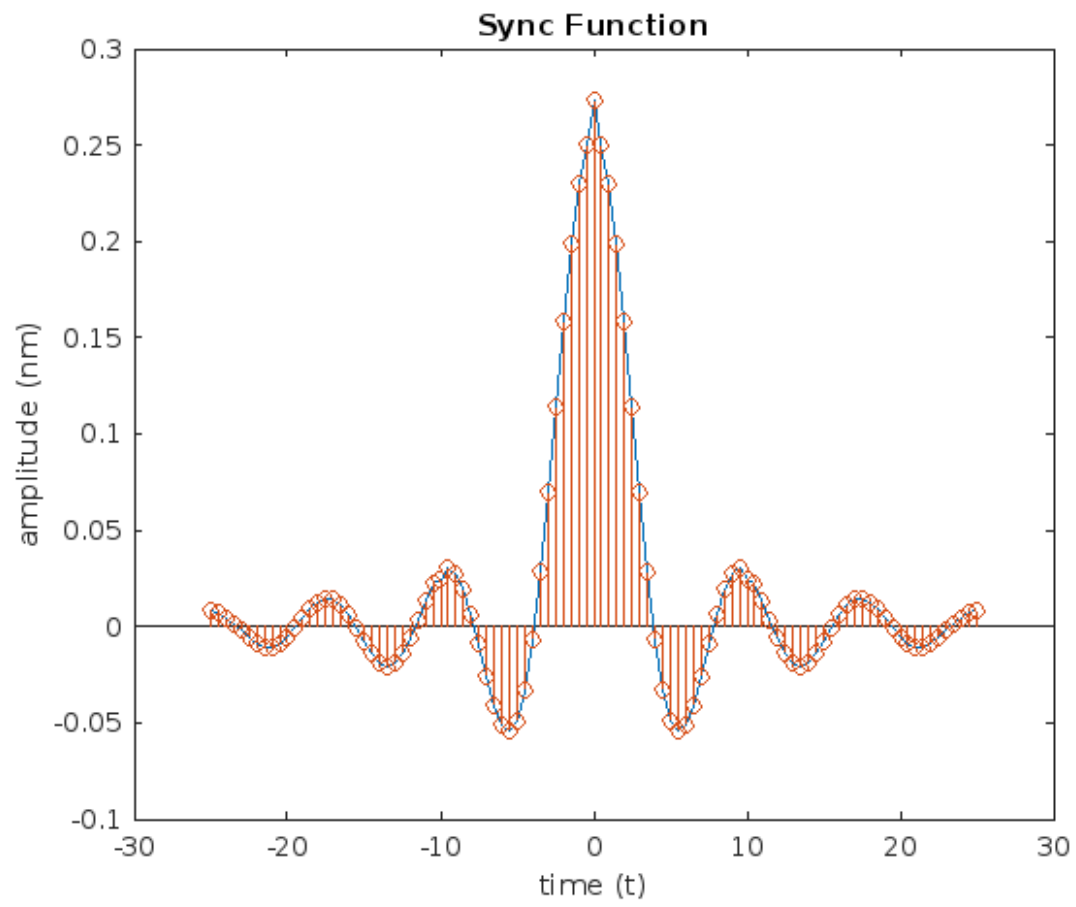```
clc
clear
close all;

n = -25:0.5:25;
r = 0.1;
m = 4;
mid = m/(4*r);
h = zeros(1,length(n));

for i = 1:length(n)
    if n(i)==0
        h(i) = (1/m) + (r/(m+((4/pi)-1)));
    elseif abs(n(i)) == mid
        h(i) = (r/m) * (2*cos((pi*(1+r))/4*r) - cos((pi*(1-r))/4*r));
    else
        h(i) = (4*r*n(i)*cos((n(i)*pi*(1+r)/m)) + m*sin((n(i)*pi*(1-r)/m))) /
 ((1-((4*r*n(i))/m)^2)*n(i)*m*pi);
    end
end

plot(n,h); hold on
stem(n,h);
xlabel("time (t)");
ylabel("amplitude (nm)");
title("Sync Function");
```

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