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```
clc;  
clear;  
close all;
```

## Parameters

---

```
num_paths = 10;           % Number of multipath components  
max_delay = 100;          % Maximum delay (in samples)  
delay_spread = 20;        % Delay spread (standard deviation of delay)  
power_dB = randn(1, num_paths); % Power of each path in dB (random for simplicity)
```

## Generate delay values

---

```
delay = randn(1, num_paths) * delay_spread + max_delay / 2;
```

## Create time axis

---

```
t = 0:max_delay;
```

## Initialize PDP

---

```
pdp = zeros(size(t));
```

## Generate PDP

---

```
for i = 1:num_paths  
    pdp = pdp + 10^(power_dB(i)/10) * exp(-(t - delay(i)).^2 / (2 * delay_spread^2));  
end
```

## Normalize PDP

---

```
pdp = pdp / max(pdp);
```

## Plot PDP

---

```
stem(t, pdp);  
xlabel('Delay (samples)');  
ylabel('Normalized Power');  
title('Power Delay Profile');  
grid on;
```

