

RECEIVED MULTIUSER WAVEFORMS

- We want the formulation

$$r_m(t) = \underline{s}(t) C_m A \underline{b} + n(t)$$

where $\underline{s}(t)$ is a row vector of variously delayed pulse shapes

- Easy: $\underline{s}(t)$ is just like S with each column of samples collapsed into a time function. For each column of S , there is a corresponding element of $\underline{s}(t)$.

Order of nesting: time \subset user \subset path

$$\underline{s}(t) = [s(t, 1), \dots, s(t, n), \dots, s(t, N-1)] \quad \text{time}$$

$$s_i(t, n), \dots, s_k(t, n), \dots, s_k(t, n) \quad \text{user}$$

$$s_k(t - nT - \tau_k - \tau_{k,0}), \dots, s_k(t - nT - \tau_k - \tau_{k,l}), \dots, s_k(t - nT - \tau_k - \tau_{k,L-1}) \quad \text{path}$$

- Note $C_m A \underline{b}$ has same interpretation as in the formulation $\underline{x}_m = S C_m A \underline{b}$