

MIMO VOLTERRA SERIES

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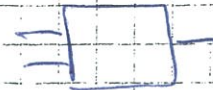
$$y(l) = v[u_1(l), u_2(l), \dots, u_k(l)]$$



$$= \sum_{\alpha=1}^{\infty} \sum_{i_1, \dots, i_{\alpha}} \sum_{h_1} \dots \sum_{h_{\alpha-1}} G_{i_1, \dots, i_{\alpha}}^{\alpha}(h_1, h_2, \dots, h_{\alpha}) u_{i_1}(h_1) \dots u_{i_{\alpha}}(h_{\alpha})$$

α ORDER $1 \leq i_n \leq K$ COMBINATIONS OF α INPUTS
 FREQUENCIES $h_{\alpha} = l - h_1 - h_2 - \dots - h_{\alpha-1}$

EXAMPLE: $k=2, \alpha \leq 3$



$$\begin{aligned} y(l) = & G_1^1(l) u_1(l) + G_2^1(l) u_2(l) \\ & + \sum G_{11}^2 u_1(h) u_1(l-h) \\ & + \sum G_{12}^2 u_1(h) u_2(l-h) \\ & + \sum G_{22}^2 u_2(h) u_2(l-h) \\ & + \sum \sum G_{111}^3 u_1(h_1) u_1(h_2) u_1(l-h_1-h_2) \\ & + \sum \sum G_{112}^3 u_1 u_1 u_2 \\ & + \sum \sum G_{122}^3 u_1 u_2 u_2 \\ & + \sum \sum G_{222}^3 u_2 u_2 u_2 \end{aligned}$$

MEASURING MIMO BLA

u_1, u_2, \dots, u_k INDEPENDENT

$$G_{BLA,1} = \frac{E\{y \bar{u}_1\}}{E\{|u_1|^2\}}$$

$$G_{BLA,2} = \frac{E\{y \bar{u}_2\}}{E\{|u_2|^2\}}$$

IDEA OF NONZERO PAIRING

