

Proposed methodology

STEP 1 : Preprocessing

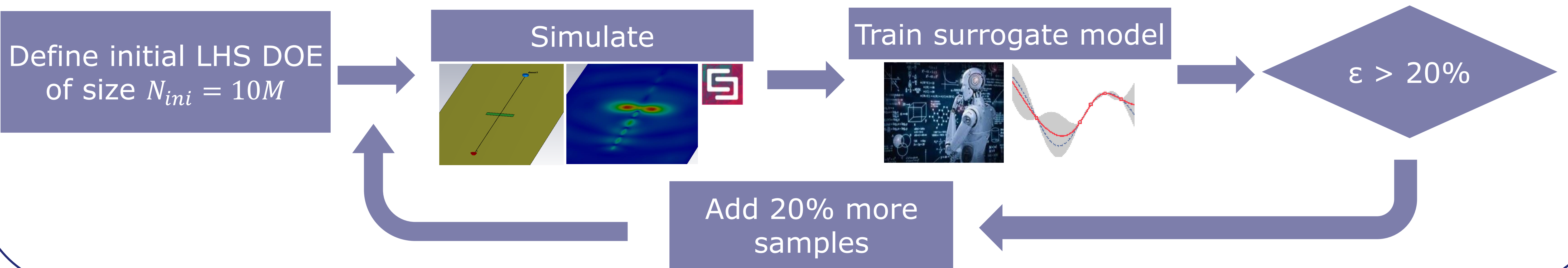
Initial problem with M parameters

$$\text{MORRIS analysis}$$

$$E_i(x) = \frac{f(x_1, \dots, x_i + \Delta, \dots, x_M) - f(x_1, \dots, x_i, \dots, x_M)}{\Delta}$$

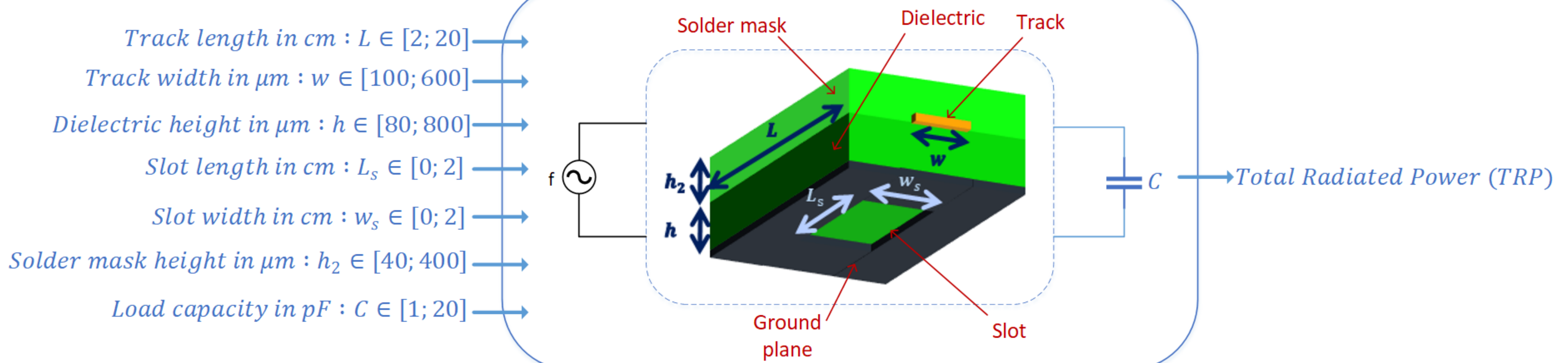
Reduced problem with $M - k$ parameters

STEP 2 : Iterative learning



Application to use case

Microstrip line with slot in the ground plane



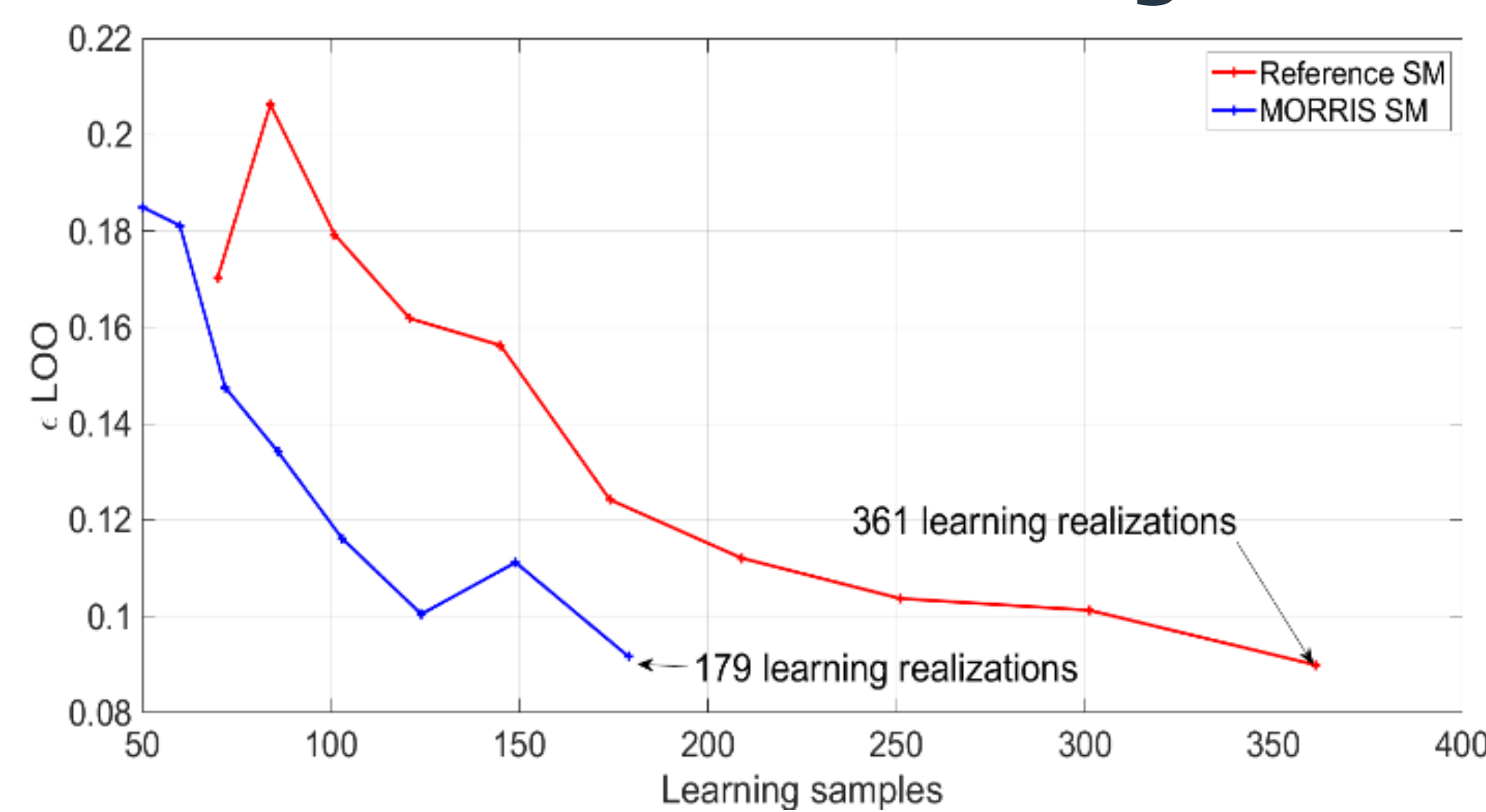
Validation : comparative study

Pre-processing



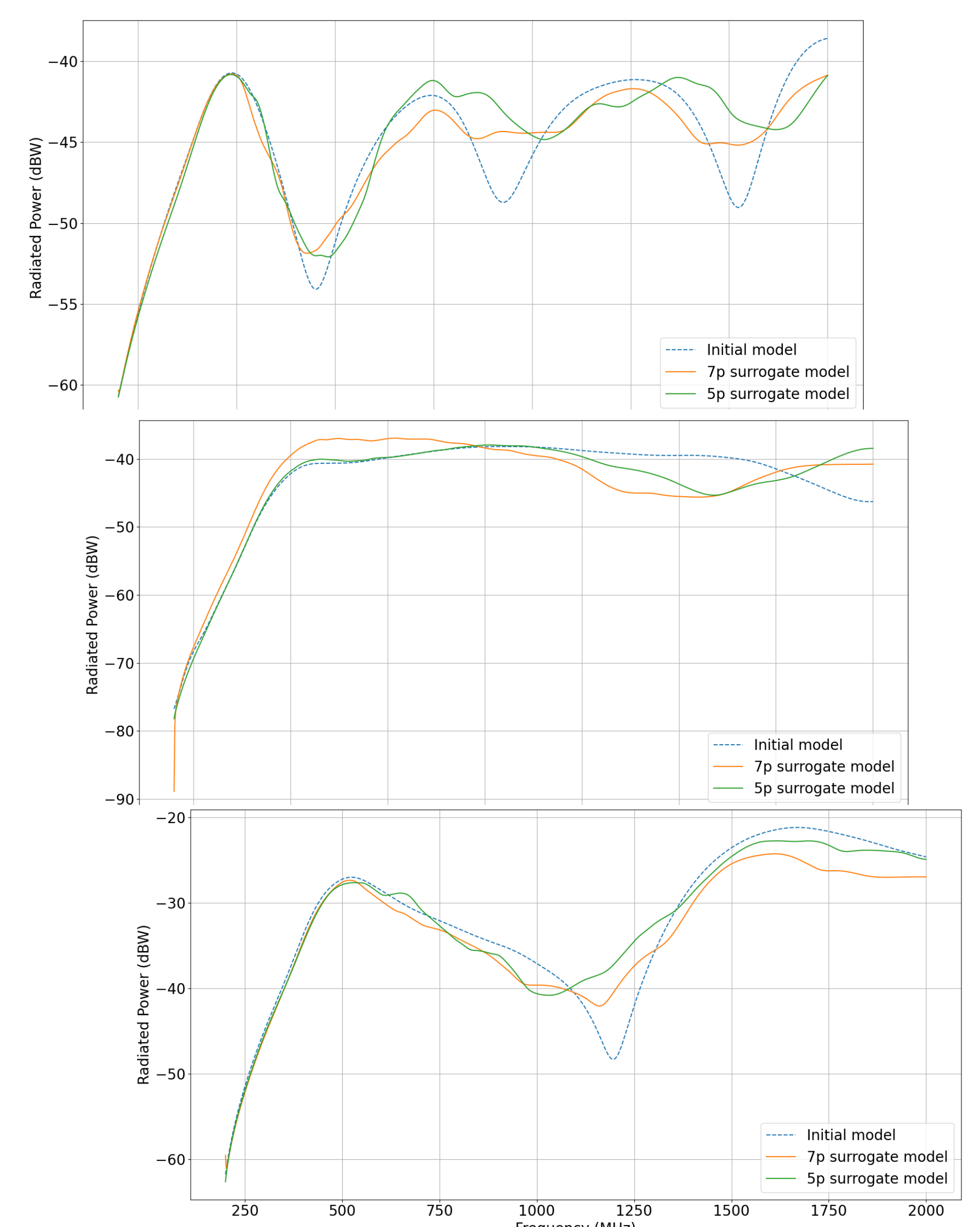
5 selected parameters → 80% explanation of output : C_l, h, L, L_s, W_s

Iterative learning



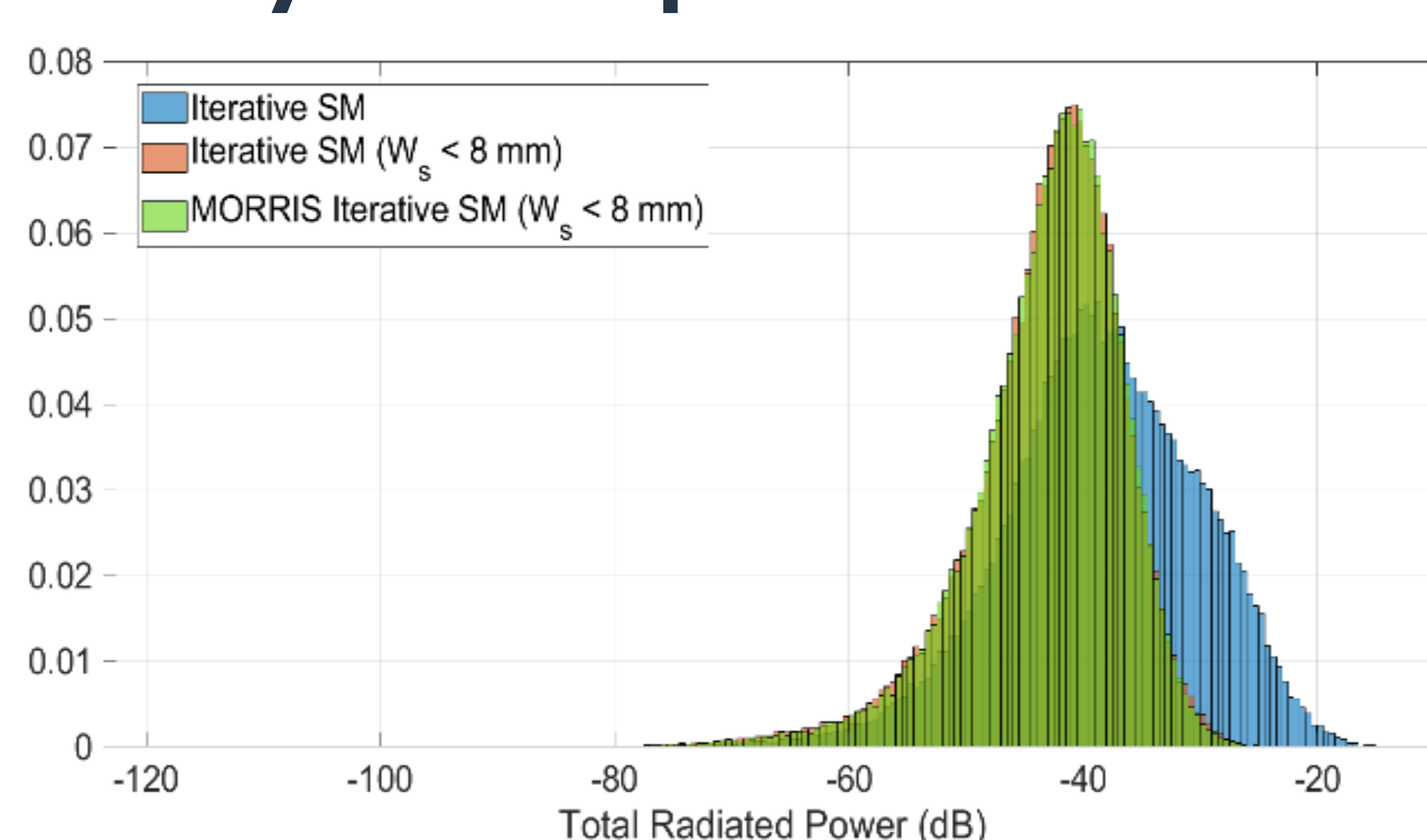
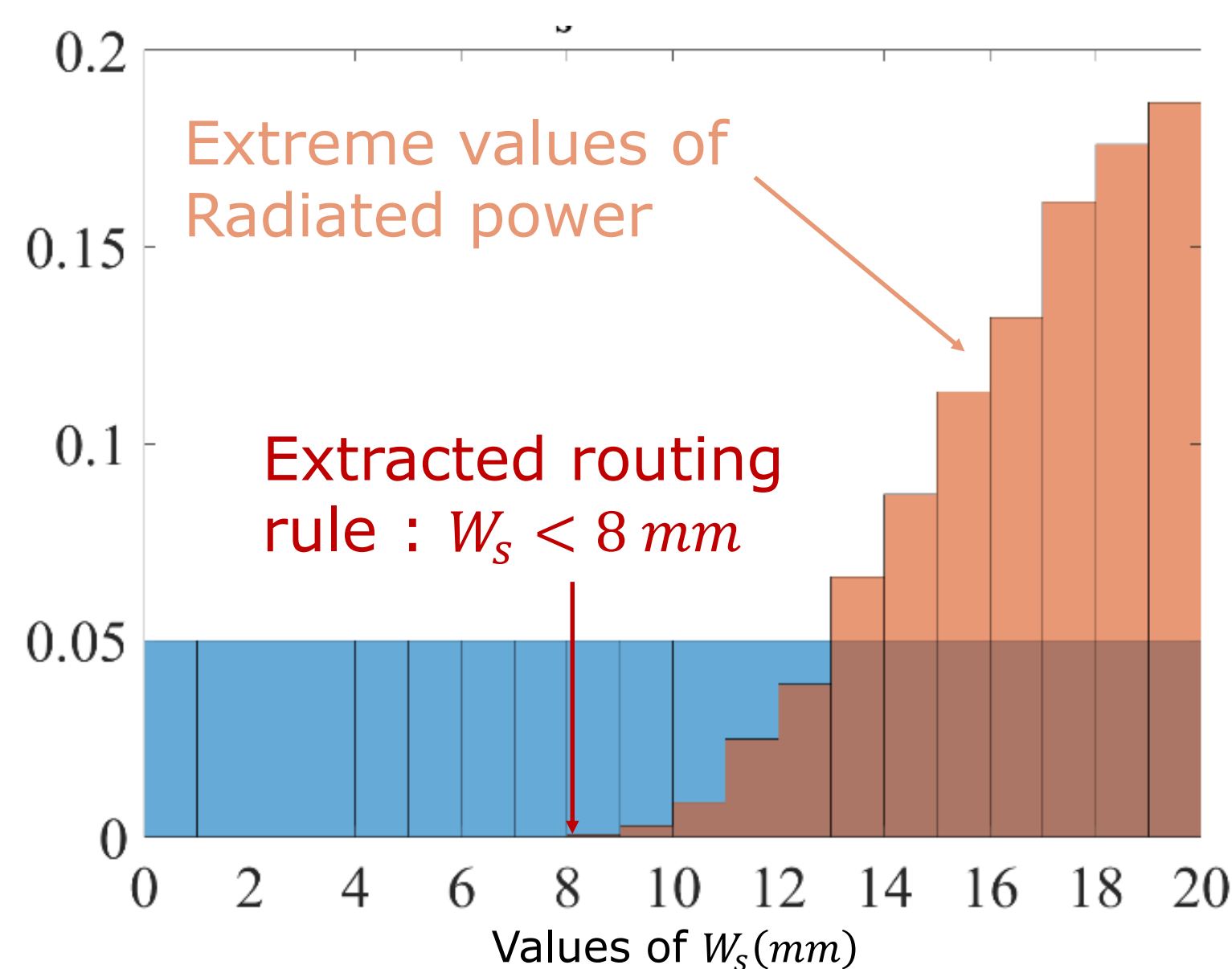
40% faster training of the surrogate model

Validation



Similar predictions of TRP between full and reduced SM on some examples

Extreme values analysis comparison



Same TRP distribution when applying the routing rule