$$f(x) = \begin{cases} \exp x & if x < 0 \\ x^2 & if 0 \le x < 2 \\ x^3 + x^2 + 1 & if 2 \le x < 6 \end{cases} \tag{1}$$

$f :$
$R^d \to$
R
$\phi :$
$[0, \infty) \to$
R

$$f(x) = \phi(\|x\|), x \in R^d \tag{2}$$

$\phi(\|x\|), x \in$
$R^d,$
$\|.\|$
$x_1, \dots, x_N \in$
R^d
$\phi :$
$R^d \to$
R
m
$\lambda_1, \dots, \lambda_N$
$\sum_{i=1}^N \lambda_i p(x_i) =$
$0,$
p
m
$\sum_{i=1}^N \sum_{j=1}^N \lambda_i \lambda_j \phi(\|x_i -$
$x_j\|) >$
$0.$
ε
$\|.\|$
d
d_0
R^d
$\phi_{l,k}$

$$\phi_{l,k}(r) = (1-r)_+^n p(r) k \ge 1, \tag{3}$$

$r =$
$\|.\|$
$(1-$
$r)_+ =$
$\max\{0, (1-$
$r)\}$
$l =$
$\lfloor \frac{d}{2} \rfloor +$
$k+$
1
??
$p(r)$
$\phi_{l,k}$
$2k$
$d =$
3
??
??
$\frac{r}{\sigma}$
$[0, \sigma]$
??
$\varepsilon =$
1.5

$\phi(r) = (1-r)_+^2$	C^0
$\phi(r) = (1-r)_+^4 (4r+1)$	C^2
$\phi(r) = (1-r)_+^6 (35r^2 + 18r + 3)$	C^4
$\phi(r) = (1-r)_+^8 (32r^3 + 25r^2 + 8r + 1)$	C^6

$x_1, \dots, x_N \in$
R^d
$u(x_1), \dots, u(x_N)$

$$s(x) = \sum_{j=1}^N \lambda_j \phi(\|x - x_j\|) + p(x), \tag{4}$$

$\|.\|$
$\lambda_j \in$
R
$j =$
$1, \dots, N$
$p \in$
Π_{m-1}^d
d
$m-$
1
$A \in$
$R^{N \times N}$