NOTATIONS

$\mathbf{R}$	the real numbers
$\mathbf{R}^+$	the nonnegative real numbers
$\mathbf{N}$	the natural numbers
$\mathbf{R}^n$	n-dimensional Euclidean space
E, X	Banach spaces
H	Hilbert space
$E = X \oplus Y$	direct sum decomposition
$\|\cdot\|, \|\cdot\|_X$	norm in the Banach space X or its dual X^*
$\langle \cdot, \cdot \rangle$	duality pairing between the space X and X^*
$(\cdot, \cdot)$	scalar product in the Hilbert space H
$L^P(\Omega)$	the Lebesgue space of measurable functions, whose p-th power is integrable on Ω
$L^\infty(\Omega)$	the space of measurable functions, which are bounded almost everywhere
$C(X, \mathbf{R})$	the space of continuous functionals from X to $\mathbf{R}$
$C^k(X, \mathbf{R})$	the space of k-times continuously differentiable functionals
$x_j \to x$	the strong convergence of sequence $(x_j)_j$ to x in X
$x_j \rightharpoonup x$	the weak convergence of sequence

$K = \{x \in E : f'(x) = 0\}$, $K_c = \{x \in K : f(x) = c\}$

$f^c = \{x \in E : f(x) \leq c\}$, $f_c = \{x \in E : f(x) \geq c\}$

$f_a^b = \{x \in E : a \leq f(x) \leq b\}$

$B_\rho = \{x \in E : \|x\| \leq \rho\}$, $S_\rho = \{x \in E : \|x\| = \rho\}$

$B_\rho(x_0) = \{x \in E : \|x - x_0\| \leq \rho\}$, $S_\rho(x_0) = \{x \in E : \|x - x_0\| = \rho\}$

$d(x, F) = \inf\{\|x - y\|, y \in F\}$, $F_\delta = \{x \in E : d(x, F) < \delta\}$
$supp\varphi = \overline{\{x : \varphi(x) \neq 0\}}$

$\lvert\Omega\rvert$	the measure of the set Ω
$f \circ g$	the composition of the mappings f and g
$W_p^k(\Omega)$	the Sobolev space of order k
$H^1(\Omega)$	the Sobolev space of order 1
$C_0^\infty(\Omega)$	the space of C^∞-functions with compact support in Ω
$H_0^1(\Omega)$	the closure of $C_0^\infty(\Omega)$ in $H^1(\Omega)$
$H_{2\pi}^1(\Omega)$	the Sobolev space of 2π-periodic absolutely continuous functions on $[0, 2\pi]$
$\lVert\cdot\rVert_{k,p}$	the norm in $W_p^k(\Omega)$
$\lVert\cdot\rVert_p$	the norm in $L^p(\Omega)$
$LL(x, \mathbf{R})$	the space of locally Lipschitz functions from X to $\mathbf{R}$
$C_{loc}^k(\mathbf{R}^n)$	the space of locally k-times continuous functions on $\mathbf{R}^n$
$L_{loc}^p(\mathbf{R}^n)$	the space of locally p-integrable functions
$H_{loc}^k(\mathbf{R}^n)$	the space of locally k-times weakly differentiable functions on $\mathbf{R}^n$

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