Index

A

Absolutely continuous part of the derivative, 372 Accretive operator, 392 Approximate discontinuity set, 371 Approximate limit, 371 Area-minimizing, 4 Area-minimizing in Ω, 384

B

Barrier condition, 112 Bombieri-De Giorgi-Giusti Theorem, 5

С

Cantor part of derivative, 372 c-cyclically monotone, 399 Coarea formula, 365, 409, 414 Codimension one Hausdorff measure, 415

D De Giorgi inequality, 327 Doubling measures, 411

F

Fenchel-Rockafellar Theorem, 395 Function of bounded variation, 363 of least gradient, 7 of least gradient in Ω with boundary data f, 326 of locally ϕ -least gradient, 72 1-harmonic, 32 ϕ -1-harmonic, 68 of ϕ -least gradient, 67

G

 Γ -convergence, 121 Green formula, 376

I

Indicator function, 393 Invariant measure, 403

J

Jump part of derivative, 372 Jump set, 372

K

Kantorovich potentials, 400 Kantorovich-Rubinstein Theorem, 400

L

Legendre-Fenchel transform, 394 Locally area-minimizing in Ω , 384 Locally finite perimeter, 364 Locally ϕ -area-minimizing in Ω , 385

M m-connected, 410 m-divergence, 409

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer 427 Nature Switzerland AG 2024 W. Górny and J. M. Mazón, *Functions of Least Gradient*, Monographs in Mathematics 110, https://doi.org/10.1007/978-3-031-51881-2 Measure-theoretic boundary, 371 Metric random walk space, 403 Metric speed, 411 Minimal set, 384 *m*-interaction, 406 Minty Theorem, 392 Miranda Theorem, 2 *m*-Laplacian, 410 *m*-least gradient function, 337 *m*-median value property, 347 Monge problem, 397 Monotone operator, 392 Moreau-Yosida approximation, 393 *m*-perimeter, 406 *m*-total variation, 336, 407

Ν

Newton-Sobolev space, 412 Nonlocal 1-Laplacian, 304 Nonlocal gradient, 409 Nonlocal Green formula, 409 Nonlocal median value property, 314 Nonlocal Poincaré inequality, 304 Non-negative mean curvature in the weak sense, 12 Not locally area-minimizing with respect to interior variations, 13

0

1-Laplacian, 32 (1, *p*)-Poincaré inequality, 411 Optimal transport plan, 398

Р

 ϕ -area-minimizing, 71 ϕ -area-minimizing in Ω , 385 ϕ -minimal set, 386 ϕ -perimeter, 379 ϕ -total variation, 378 ϕ -total variation minimizing, 71 Poincaré inequality, 366 (p, ψ) -Poincaré inequality, 340 Pointwise barrier condition, 112 Precise representative, 372 Push-forward, 397

R

Random walk, 403 Reduced boundary, 369 Regular point, 383 Relative isoperimetric inequality, 367 Reversible measure, 403

S

Set of finite perimeter, 364 Singular point, 383 Slope, 413 Sobolev-Dirichlet class, 412 Sobolev inequality, 366 Sobolev-Poincaré inequality, 367 Special function with bounded variation, 373 Sternberg-Williams-Ziemer construction, 12 Strict convergence, 365 Subdifferential, 392

Т

Tangential derivative, 373 The Monge-Kantorovich problem, 398 Total variation minimizing, 10 Trace, 367 Transport density, 247 Transport ray, 401 Truncation function, 8

U

Uniformly convex domain, 196, 266 Upper gradient, 411

V Variational solution, 304

W

Weak solution for the anisotropic problem, 57 for the isotropic problem, 32 Weak* convergence in BV, 365 Weighted discrete graph, 404