CAMBRIDGE

Cambridge University Press
978-1-107-02103-7 - Sets of Finite Perimeter and Geometric Variational Problems: An Introduction to Geometric Measure Theory
Francesco Maggi
Index
More information

Index

approximate tangent space, 99

blow-ups
  of a Radon measure, 97
  of a set, 168
Borel
  function, 31
  measure, 14
  sets, 14
boundary
  essential boundary, 184
  reduced boundary, 167
  topological boundary, xviii

Campanato's criterion, 64
cone, 366
  singular minimizing cone, 366
curve, 27

diffeomorphism, 196
  one parameter family, 200
differentiability
  differentiable function, 74
  differential of a function, 74
  tangential (to a C^1 surface), 106
  tangential (to a rectifiable set), 108
Direct Method, 136
divergence
  boundary divergence, 201
  tangential divergence, 111

excess
  cylindrical, 290
  excess measure, 297
  orientation-free, 322
  spherical, 290

flatness, 320

graph of a function, 89

Jacobian
  of a C^1 function, 5
  of a Lipschitz function, 76
  tangential, 106

Lebesgue points
  of a function, 62
  of a set, 62
local variation, 200
  associated with a vector field, 200
  initial velocity, 200

mean curvature
  distributional (of a set of finite perimeter), 201
  scalar (of a C^h-surface), 111
  variational (of a set of finite perimeter), 204
  vector (of a C^h-surface), 111
  vector (of a set of finite perimeter), 201
measure
  σ-additivity, 7
  σ-subadditivity, 4
  Borel measure, 14
  component of, 36
  concentrated on, 21
  counting measure, 4
  Dirac measure, 4
  Gauss–Green measure, 122
  Hausdorff measure, 5
  Hausdorff measure of step δ, 5
  Lebesgue measure, 4
  locally finite, 19
  measurable sets, 8
  monotonicity, 4
  outer measure, 4
  polar decomposition, 36
  push-forward of, 21

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-02103-7 - Sets of Finite Perimeter and Geometric Variational Problems: An Introduction to Geometric Measure Theory
Francesco Maggi
Index
More information

Radon measure, 19
signed, 36
vector-valued, 36
regular Borel measure, 16
restriction, 20
support of, 21
minimizers
(Λ, r_0)-perimeter minimizer, 278
Cheeger sets, 166
constrained isoperimetric sets, 233
local minimizer of an integral functional, 307
local minimizer of the area functional, 306
local perimeter minimizer, 189
minimizing cluster, 391
perimeter minimizer, 189
perimeter sub-minimizer, 383
relative isoperimetric set, 138
volume-constrained perimeter minimizer, 208
monotonicity
formula, 370

neighborhood of a set, 7

outer unit normal
classical, 90
measure-theoretic, 167

perimeter, 122
first variation, 200
relative, 122
second variation, 212
stationary set for, 204

regular Lipschitz image, 98
regularization
kernel, 49
of a function, 49
of a Radon measure, 49

set
of (locally) finite perimeter, 122
with C^k-boundary, 90
with almost C^1-boundary, 93
with Lipschitz boundary, 92
with polyhedral boundary, 93
surface
parametrized, 5
surfaces
$\mathcal{H}^k$-rectifiable set, 96
k-dimensional surface of class C^h, 96
countably $\mathcal{H}^k$-rectifiable set, 96
hypersurface, 96
hypersurface with boundary, 111
locally $\mathcal{H}^k$-rectifiable set, 96
orientable, 111
orientation of, 111

total variation
of a function, 146

variational problems
Cheeger problems, 166
constrained isoperimetric problem, 232
partitioning problem, 391
Plateau-type problem, 136
relative isoperimetric problem, 138
Vitali's example, 7

© in this web service Cambridge University Press www.cambridge.org