



Selected problems on elliptic equations involving measures

[Augusto C. Ponce](#)

(Submitted on 3 Apr 2012)

This monograph concerns linear and nonlinear Dirichlet problems involving L^1 data and more generally measure data, based on Stampacchia's definition of weak solution. We explain some of the main tools: linear regularity theory, maximum principles, Kato's inequality, method of sub and supersolutions, and the Perron method.

The nonlinear Dirichlet problem need not have a solution for every finite measure. We give characterizations of measures for which the problem has a solution with polynomial and exponential nonlinearities in connection with capacities and Hausdorff measures. Finally, we give a different approach to study the concept of reduced measure introduced by Brezis, Marcus and Ponce.

Comments: 143 pages; manuscript submitted to the concours annuel 2012 of the Acad\`emie royale de Belgique

Subjects: **Analysis of PDEs (math.AP)**; Classical Analysis and ODEs (math.CA); Functional Analysis (math.FA)

MSC classes: 35J15, 35J57, 35J61, 35J75, 28A78, 32U20

Cite as: [arXiv:1204.0668](#) [math.AP]

(or [arXiv:1204.0668v1](#) [math.AP] for this version)

Submission history

From: Augusto Ponce [[view email](#)]

[v1] Tue, 3 Apr 2012 11:55:56 GMT (85kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

math.AP

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1204](#)

Change to browse by:

[math](#)

[math.CA](#)

[math.FA](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

